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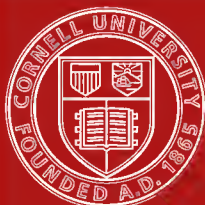


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RAILROAD PROMOTION
AND CAPITALIZATION
IN THE UNITED STATES

By the Same Author

THE BANK AND THE TREASURY.

Crown 8vo.

**CHAPTERS ON MUNICIPAL
ADMINISTRATION AND
ACCOUNTING.**

Crown 8vo.

RAILROAD PROMOTION
AND CAPITALIZATION
IN THE UNITED STATES

By

FREDERICK A. CLEVELAND, PH.D.

AND

FRED WILBUR POWELL, A.M.

LONGMANS, GREEN, AND CO.

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PREFACE

THIS work was begun by me eight years ago, and formulated as a first draft while connected with the University of Pennsylvania. In 1905, Mr. Fred. Wilbur Powell undertook to assist in the collection of scattered materials from the many libraries where early periodicals and documents might be found, since which time he has been almost continuously in collaboration. The cost of this part of the work and of preparing an exhaustive bibliography has been largely borne by Carnegie Institution. Subjects pertaining to the financing of construction and equipment, financial management, bankruptcy, receivership, reorganization, and consolidation will be presented at a later date.

F. A. C.

NEW YORK, *November*, 1908.

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RAILROAD PROMOTION AND CAPITALIZATION IN THE UNITED STATES

CHAPTER I

THE FIRST ERA OF TRANSPORTATION DEVELOPMENT IN THE UNITED STATES

As we know it, inland transportation is the product of the last century. It had its beginning in the industrial revolution. In England at the close of the eighteenth century the manor as a productive agency had been supplanted by a system of domestic production, and this in turn was giving place to the factory. The combined influences of increasing capital and invention had operated to centralize the industrial population in the towns. Ocean commerce was comparatively well developed, and manufacture was fast being established upon a modern basis; but inland transportation was still encumbered by such primitive methods as to make difficult the utilization of the resources of the interior. A century and a half before, Lord Bacon had called attention to the three elements necessary to make a nation great and prosperous, — “a fertile soil, busy workshops, and easy conveyance of men and things from one place to another,” but the significance of this reflection was not appreciated until after the middle of the eighteenth century. The controlling force of custom — social inertia — had stood in the way of progress.

Overcoming manorial ideas was a slow process. The spirit of local independence which was dominant in the self-centred community had served to thwart despotic rulers, and to transform England into an elective, consti-

tutional government, but it had also retarded material progress. In the interior there was comparatively little interest in domestic commerce except as it was carried on at the numerous fairs, — a form of market which had grown up under the manorial régime. Little was done even to

In England make the highways safe for travellers. Brigandage was an established pursuit; the highwayman was considered almost a part of the highway. Not only was inland transportation expensive and travel hazardous, but towns raised up artificial barriers to trade in the form of tolls, tariffs, and local fees. These also were survivals of a feudal past, which were based upon the same social and economic conditions. Until about the opening of the nineteenth century the principal manufacturing towns of Great Britain were situated on or near the coast; for in the inland country goods were still carried on the backs of men, or hauled in carts over heavy roads.¹ Said Lardner: "The internal transport of goods in England was performed by waggon, and was not only intolerably slow, but so expensive as to exclude every object except manufactured articles, and such as, being of light weight and small bulk in proportion to their value, would allow of a high rate of transport. Thus the charge for carriage by waggon from London to Leeds was at the rate of £13 a ton, being 13½*d.* per ton per mile. Between Liverpool and Manchester it was 40*s.* a ton, or 15*d.* per ton per mile. Heavy articles, such as coal and other materials, could only be available for commerce where their position favored transport by sea, and, consequently, many of the richest districts of the kingdom remained unproductive, awaiting the tardy advancement of the art of transport."²

Continental Europe presented similar conditions. The

¹ Traill, *Social England*, V, *passim*; Warner, *Landmarks of English indus. hist.*, 277-8.

² Lardner, *Railway economy*, 35.

wide extent of its inland areas, the multiplicity of its political systems separated by numerous tolls and tariffs, effectually obstructed progress toward coöperative activity,¹ and rendered **In Continental Europe** effective industry almost impossible except at a few points which were within the range of ocean trade. "Germany was not only cut off from the outer world by tariff barriers," says Doctor Clive Day, "but cut up inside by the tolls of cities and territories. Every city on the trade route wanted to make itself a 'staple,' *i.e.*, have all goods passing the vicinity brought there for taxation and for sale. Frankfort on the Oder, for instance, demanded that all boats passing down the river Warthe should come *up* to Frankfort before they could continue their journey down the Oder to Stettin. The cities of Stettin, Frankfort, and Breslau, all situated on the Oder, instead of using the river for peaceful exchange, made bitter commercial war on each other with tolls and prohibitions."¹

Nor were these ancient ideals without force in the New World. Before the Revolution the American colonists lived in almost complete isolation. Travel by land was limited, for water communication presented fewer obstacles to progress. Population was arranged along the seaboard, or in isolated groups a short distance inland. Living narrow, self-centred lives, each community developed a distinct dialect and characteristic customs and **In America** dress. Social activities were limited to going to mill, market, and church, or exchanging friendly calls; travelling on foot or on horseback along wooded trails. Even between seacoast towns there was little interchange of products or population; and a citizen of one colony going to another was at once struck with the many local peculiarities.² It was less than twenty years before the

¹ Day, *Hist. of commerce*, 255-6.

² Doyle, *Eng. colonies in Amer.*, V, 52-3; Earle, *Colonial days in old New York*; *Customs and fashions in old New England*, 184-203.

Revolutionary war when the first stage line was opened between New York and Philadelphia, and three days were then required for a single trip. It was ten years later when the first stage line was established between Philadelphia and Baltimore.¹

METHODS OF TRAVEL AND TRANSPORT

Between towns of considerable size there were country roads over which vehicles could pass when the weather would permit. The stage-coach, which was the only public land conveyance, plied along the coast and between a few inland centres, but the coaches of that day were rude boxes swung on wheels by leathern straps instead of springs, with seats for a dozen or more and accommodations for a limited amount of baggage. The rate of travel was from two to six miles an hour, according to the condition of the roads and the importance of the route. On the farm the mud-boat or stone sledge was in common use, and at times it was even employed to carry produce to local markets. In more progressive communities two-wheeled carts and wagons were to be found. The best of roads, however, were nothing but "mud roads"; and the wagons, commonly of the linch-pin type, were clumsy and awkward. Some of the more primitive wagons had wheels made of cross sections of trees, trimmed and centred to roll on axles of wood. Those who travelled had little thought of time; companionship found expression in story-telling, gossip, and tippling; and an emergency which required all to get out and "take a wheel" only added spice to the trip.²

We have the following description of the roads about Philadelphia, the metropolis and commercial centre of the New World: "On the best lines of communication the ruts

¹ Bolles, *Pennsylvania*, II, 284-5.

² Weeden, *Econ. and soc. hist. of New England*, II, 857.

were deep, the descents precipitous. . . . Near the great cities the state of the roads was so bad as to render all approach difficult and dangerous. Out of Philadelphia a quagmire of black mud covered a long stretch of road near the village of Rising Sun. There horses were often seen floundering in the mud up to their bellies. On the York road, long lines of wagons were every day to be met with, drawn up near Logan's hill, while the wagoners unhitched their teams, to assist each other in pulling through the mire. At some places, stakes were set up to warn teams of the quicksand pits; at others, the fences were pulled down, and a new road made through the fields."¹ Transportation facilities were either entirely lacking or such as to make travel both expensive and hazardous.² It is difficult to realize that as late as 1780 the roads over a large part of Pennsylvania were narrow paths which had been made through the woods by Indians and traders.³

The isolation of interior settlements finds apt illustration in the Wyoming valley. This rich region along the Susquehanna had been until 1786 almost completely cut off from the outer world. A small colony had moved in from the East, and taking color of title from Connecticut, disclaimed the sovereignty of the Quaker proprietary. War consequently broke out between this isolated settlement and the Pennsylvania government. Several military expeditions were sent out to reduce the "Yankees" to submission; but the absence of roads and the necessity of carrying provisions on horseback left the determined pioneers masters of the situation when the larger issue, the Revolutionary war, suspended

The Wyoming massacre as a related incident

Absence of roads in the interior

¹ McMaster, *United States*, I, 52, citing Watson, *Annals of Phila. and Pa.*, I, 257.

² Weld, *Travels through North Amer.*, I, 46-8, 97-8.

³ Bolles, II, 276, et seq.

local strife. The spring after Burgoyne's surrender at Saratoga the settlers of the Wyoming valley learned that a detachment of Johnson's "Royal Greens" and Butler's "Rangers," with a company of Tories, had allied themselves with the Seneca Indians, and were preparing to descend upon the valley. A courier was despatched to congress, and appeals for aid were made to the neighboring states, but the isolation which had before served for defence now brought disaster. With the June freshet the British allies came down from Tioga, and nothing but ruins was left to mark the scene.¹ One of the reasons urged for the removal of the state capitol from Philadelphia to Harrisburg in 1799 was the cost of travel, which bore heavily upon legislators from the interior.²

The significance of the transportation problem is further illustrated by the methods which the inland settlers employed to get their produce to market before the inauguration of a system of water communication. One of these was to transform their grain into whiskey and thereby embody great value in a small bulk. This is shown by Gallatin's petition of 1792 in behalf of the western counties of Pennsylvania against the federal excise tax: "Distant from a permanent market, and separate from the eastern coast by mountains which render communication difficult and almost impracticable, we have no means of bringing the produce of our lands to sale either in grain or in meal. We are, therefore, distillers through necessity, not choice, that we may comprehend the greatest value in the smallest size and weight. The inhabitants of the eastern side of the mountains can dispose of their grain without the additional labor of distillation at a higher price than we can, after we have bestowed that labor upon it. Yet with this additional labor we must also pay a high duty from which they are exempted, because

¹ Bolles, II, 2-26.

² Sharpless, Pennsylvania, 246.

we have no means of selling our surplus produce but in a distilled state.”¹

Of still greater significance is the fact that those inhabitants east of the mountains to whom Gallatin referred also found it a decided advantage if not a necessity to transform their rye into whiskey. Doctor G. D. Leutscher shows that in 1782 there were about six hundred and fifty distilleries in the counties of York and Lancaster. The inhabitants of the former had to travel on an average only fifty miles to the Baltimore market, and those of the latter, sixty miles to Philadelphia. The same conditions prevailed in other counties similarly situated. Between 1820 and 1840, the period during which the transportation problem in these localities was being solved, the number of these distilleries decreased.²

The early settlers of Springfield, Massachusetts, were obliged to send their household goods from Roxbury around by way of Long Island Sound and the Connecticut river, but they themselves were able to proceed on foot along an Indian trail. In time this trail was widened, and as the “Bay path” and the “Boston road” occupied an important place among the transportation routes of the colonies. It was, however, little more than a narrow wagon path until after the Revolution, and so indistinct was it that travellers frequently wandered off the route. A curious stone post marks the place near the national armory at Springfield, where in 1763 a western Massachusetts merchant lost his way, and set up a guide for other travellers. Even as late as 1795 there were but two stages between Boston and New York, and a week was required for the journey. John Bernard, the English actor, thus described a typical New England road of 1797: “Though far better than in any other quarter of

The roads of
New England

¹ Adams, Writings of Gallatin, I, 3-4.

² Leutscher, Industries of Pa., *German Amer. Annals*, V, 200-5.

the Union, the frequent jolts and plunges of the vehicle brought it into sad comparison with the bowling-greens of England. Very often we surprised a family of pigs taking a bath in a gully of sufficient compass to admit the coach. As often, such chasms were filled by piles of stones that, at a distance, looked like Indian tumuli. The driver's skill in steering between these dangers was eminent. I found there were two evils to be dreaded in New England travelling — a clayey soil in wet weather, which, unqualified with gravel, made the road a canal; and a sandy one in summer, which might emphatically be called an enormous insect preserve.”¹ Such testimony makes real the difficulties which attended travel over the important routes, and enables one to understand how it could have required Washington nearly two weeks to make the trip from Philadelphia to Cambridge at the outbreak of the Revolution.²

In making preparations to resist the military power of Great Britain, this same spirit of localism which had stood in the way of transportation development was the greatest obstacle the Revolutionary leaders had to overcome. Through committees of correspondence and international conferences, they were compelled to labor for years to induce the people to take united action.³ Necessity for political co-operation finally opened the way to broader industrial and social activities. With the gradual disappearance of ideals of individualism and local independence, and with the rise of a national democracy and the supremacy of a coöperative, self-directing commercial and industrial class, the awakening came. In

The Revolutionary war and localism

¹ Bernard, *Retrospections of Amer.*, 36.

² It required thirteen and a half days to make a trip of four hundred miles through Alabama in 1803. — Martin, *Internal Improvements in Alabama*, 14.

³ Hunt, *Provincial committees of safety* (1904); Doyle, V, 48-52; Franklin, *Works* (Sparks ed.), III, 26-55, IV, 41-2.

Europe and America alike, toward the end of the eighteenth century, social obstructions to internal improvements gradually disappeared. In England the industrial revolution preceded the political; in France and America the order was reversed. Each was but the different expression of the same movement, marked by a change from the old régime to the new, and the supremacy of ideals of common welfare as opposed to social and political privilege. With the establishing of these ideals the advantage of inland communication and traffic dawned upon the people, and attention was directed toward the best means to that end.

INTERNAL IMPROVEMENTS AFTER THE REVOLUTIONARY WAR

Before the Revolution the subject of road improvement was seldom considered in public assemblies, and the early laws contain few provisions even for common roads. Those who proposed measures for general improvement met with little encouragement. As early as 1690 William Penn suggested the practicability of a waterway from the Schuylkill to the Susquehanna.¹ In 1762 David Rittenhouse of Philadelphia, and Provost Smith of the University of Pennsylvania, proposed a similar project, and made surveys of the route by the Swatara and the Tulpehocken; in 1769 the

Early educational efforts

American Philosophical society interested itself in a canal survey between Chesapeake bay and the Delaware, recommending the enterprise to the public.² In 1768 Governor Moore of New York projected a canal around the Canajoharie falls of the Mohawk.³ But to none of these suggestions was there any active response, for the time was not ripe for such undertakings.

¹ Bishop, State works of Pa., Conn. Acad. of Arts and Sci., *Transactions*, XIII, 153-4; Union canal company, a brief history, 1-4. (1853.)

² Amer. Phil. Soc., *Transactions*, I, 293-300; Watson II, 467; Worthington, Hist. of the finances of Pa., 15-6.

³ Doc. relative to the colonial hist. of N. Y., VIII, 93.

The commingling of citizen soldiers from Georgia and the Carolinas with those from New York and New England, and the broader interests and sympathies which were inspired by the shifting scenes of war, enlarged the American social horizon. With peace came the realization that the destinies of the New World were in the keeping of the American people. Not only were they among the first to catch the spirit of the times, but with eyes open to their new possi-

Influence of the war upon internal development

bilities, those who had been comrades in arms now turned to the conquest of the interior. This westward movement was stimulated by the military land bounties, which were granted to the veterans of the war, and to the heirs of those who had lost their lives in the service. To provide for these grants a large tract was set apart in Ohio, and the cost was borne by the federal government as one of the expenses of the war.

Contributing to the road-making impulse immediately after the war of independence was a newly awakened community interest. At the time of the adoption of the constitution there were two distinct classes in the United States: a highly localized class of the seaboard and of the inland trade routes, and a widely distributed agricultural class. American commerce was largely confined to American products. England, France, and Holland monopolized the trade of their colonies, and in other ways favored their own merchantmen in foreign trade. Such being the condition, our commercial advantage lay in the development of our own resources. The settlement of the Middle Atlantic states and of the valleys of the interior only served to strengthen the inter-

Interest in inland commerce and the opening of the West

dependence of the people, who found a common interest in internal improvements. To the agriculturist, cheap conveyance to market was a prerequisite to profitable industry. To the commercial class on the seaboard and on the leading trade routes inland improvement was at that time no less important.

The influence of a strong commercial interest in the development of roads to the remote interior is illustrated by an incident of the French and Indian war. The Ohio company was organized in 1748 to trade with the Indians and to develop the Ohio valley. Putting their boats into the Potomac above the Great Falls near Georgetown, a party sent out by this company was able to proceed as far as Will's Creek, now Cumberland. There, a storehouse was built in 1750, and a trading post established; but beyond that point only Indian trails led to the West. Governor Dinwiddie and other leading men of Virginia and Pennsylvania were interested in this company. When there arose the question as to the choice of route for the military expedition against Fort Duquesne, it is said that purely from commercial motives the Potomac route was selected. At all events, instead of going through Pennsylvania, where settlements reached out fully half the distance and the obstacles to quick military movements were comparatively few, the troops were put to work building a military road along the route of special interest to this company. The time spent in its construction gave the French opportunity to acquaint themselves with Braddock's movements, and to lay the ambush which put the American and English forces to flight.¹ The fact that the commercial spirit was permitted to prevail at a time when the destinies of the English colonies seemed to depend upon the use of the greatest military discretion indicates the strength of the business motive to transportation enterprise, and shows the necessity of giving due consideration to economic motives in the study of our history.

There was a notable change in the popular attitude toward road making after the war, and all public-spirited men now saw in better means of communication an instru-

¹ Ward, Chesapeake and Ohio canal project, Johns Hopkins Univ., *Studies*, XVII, 10-2.

ment for the establishing of American supremacy over the western continent. Legislatures made generous appropriations for highways. An active migration set in from New York and northern Pennsylvania to the West. In 1783 the first regular mail service was established between Albany and Schenectady. In 1793 the horse path from Albany to the Connecticut valley was widened to a wagon road.¹ Like activity in road making was shown throughout southern and western New York, middle Pennsylvania, Maryland, and Virginia.

Evidence of the awakening of a broader commercial and industrial spirit is clearly set forth in the preamble of a Pennsylvania act "for the opening and establishing of certain roads in the Counties of Northampton and Luzerne," which declared that: "the opening of roads through the unsettled part of this State will greatly promote its settlement and population, and increase its domestic and foreign commerce, its manufacture and agriculture; and divers persons, citizens of the State, have already subscribed considerable sums of money, and divers other persons are disposed to subscribe further sums for the purpose of opening the roads from Pocono Point in the County of Northampton to a place known by the name of Mount Ararat, and thence to the New York line at the intended carrying place between the rivers Susquehanna and Delaware, and . . . the said road will conduce to the immediate settlement of extensive tracts of country and will render Pennsylvania the most eligible route for the emigrants from the Northern and Eastern parts of the United States. . . ."²

In 1785 Pennsylvania appropriated \$10,000 to lay out a road from a point near the mouth of the Juanita to Pittsburgh.³ In 1786 an act was passed appropriating \$1500

¹ Earle, Stage-coach and tavern days, 237.

² Smith, Laws of Pa., II, 442. (1788.)

³ Ibid., II, 349.

"to view and open a road from Lehigh Water Gap to Wyoming," which was the first road into that valley from the Delaware.¹ In 1787 another road was authorized between the Susquehanna and the Delaware.² Activity in opening communication with the interior increased until by 1791

the movement had assumed proportions to be styled a "mania." By a single act over

**Appropriations
in 1791**

\$150,000 was appropriated for the improvement of eleven rivers and over a score of roads in different parts of the State.³ Other acts were passed at the same session, granting charters and appropriations for various transportation enterprises. New York in 1797 authorized the raising by lotteries of \$45,000 for the improvement of various roads throughout the State.⁴ As if by common impulse, all the states now became interested in road improvement, and congress was asked to aid by this means the opening up of the resources of the interior.

The low cost of water transportation had early directed popular attention to canals as a means of overcoming obstructions in natural watercourses, thereby serving the needs of the inland population, and also providing the means for diverting trade from one seaport to another. The Revolutionary war was hardly over when Charles Carroll organized a company to open a canal about the obstructions in the lower Susquehanna. And Washington almost immediately after his return to private life made a tour of the Western country and submitted his impressions to Benjamin Harrison, governor of Virginia, in a letter in which he set forth the necessity for closer communication between the Ohio valley and the Atlantic seaboard:

"I need not remark to you, Sir," said he, "that the flank and rear of the United States are possessed by other powers, and formidable ones too; nor how necessary it is to apply

¹ Ibid., II, 372.

² Ibid., II, 411.

³ Ibid., III, 24.

⁴ L. 1797, c. 60.

the cement of interest to bind all parts of the Union together by indissoluble bonds, especially that part of it which lies immediately west of us, with the middle States. For what ties, let me ask, should we have upon these people? How entirely unconnected with them shall we be, and what troubles may we not apprehend, if the Spaniards on their right, and Great Britain on their left, instead of throwing stumbling-blocks in their way, as they do now, should hold out lures for their trade and alliance? What, when they gain strength, which will be sooner than most people conceive, . . . will be the consequence of having formed close connexions with both or either of those powers, in a commercial way? It needs not, in my opinion, the gift of prophecy to foretell. The western settlers (I speak now from my own observation) hang upon a pivot. The touch of a feather would turn them any way. They have looked down the Mississippi, until the Spaniards, very impolitically, I think, for themselves, threw difficulties in their way; and they looked that way for no other reason than because they could glide gently down the stream; without considering, perhaps, the difficulties of the voyage back again, and the time necessary to perform it in; and because they have no other means of getting to us but by land transportation and unimproved roads. These causes have hitherto checked the industry of the present settlers. . . . Smooth the road, and make easy the way for them, and then see what an influx of articles will be poured upon us; how amazingly our exports will be increased by them, and how amply we shall be compensated for any trouble and expense we may encounter to effect it.”¹

It was his plan to pass around the Great Falls above Georgetown and the rapids at Harper’s Ferry by means of a system of locks and canals; and to this end the Potomac company was organized in 1785 with Washington at its

¹ Washington, Writings (Ford ed.), X, 407-9; (Sparks ed.) IX, 62-3.

head.¹ The Dismal Swamp canal company was chartered first in 1787 and again in 1790.² In Pennsylvania the Schuylkill and Susquehanna canal company was incorporated in 1791, and the Delaware and Schuylkill canal company, the following year.³ In 1792 New York chartered the Western Inland Lock Navigation company to connect the Mohawk with Lake Ontario, and the Northern Inland Lock Navigation company to link the Hudson with Lake Champlain.⁴

Those who took the most active interest in canal construction at this time were men who, like Washington, viewed the future with patriotic interest. This interest, however, was one which did not appeal to the private investor. An enterprise based upon such public consideration required government support. Washington, appreciating this fact, made it a basis of appeal for public aid to the Potomac company.

This period also marked the beginning of turnpike construction. The first turnpike road in this country of which we have a record was built between Alexandria and the Lower Shenandoah.⁵ It was begun in 1785-6, and its completion was the cause of great satisfaction to Jefferson and other public-spirited men of Virginia who had labored in the cause of a "broader national life." Alexandria was at that time an important competitor of the other seaboard cities.⁶ Across the Maryland peninsula on the Chesapeake

¹ Pickell, New chapter in the life of Washington, 47-116; Ward, *ut supra*, 12-16; 19 cong. 1 sess., H. rep. no. 228.

² Wheeler, North Carolina, 135.

³ Carey and Bioren, *Laws of Pa.*, IV, 88, 189.

⁴ L. 1792, c. 40.

⁵ Earle, Stage-coach and tavern days, 232.

⁶ "Alexandria has grown from nothing to its present size within these forty years. It is not so considerable as Baltimore which it ought to surpass." — Brissot de Warville, *New travels in the U. S.*, I, 367. (1788.)

lay Baltimore, a commercial rival of both Alexandria and Philadelphia. In 1787 the grand jury sitting at Baltimore called attention to the deplorable condition of the roads leading to that city, and urged the authorities to take immediate action.

**Beginnings of
the turnpike**

As a result, the county government ordered the old Frederick, Reistertown, and York roads turnpiked at public expense.¹

To the west of Philadelphia lay the Susquehanna valley. The natural outlet of this growing region was down the Chesapeake to Baltimore. To attract traffic to the Quaker city a company was organized in Philadelphia in 1792 to build the Lancaster Pike, which was the first turnpike in this country built by voluntary subscription.²

EUROPEAN WARS AND THE CONFLICT BETWEEN THE SEACOAST AND THE INTERIOR

The outbreak of the European wars in 1793 was followed by a marked change in the American industrial situation. Up to that time England, France, Holland, and Spain had held monopolies over the trade of their colonies, which, together with tariff discriminations against American trade abroad, had forced the commercial classes in America to look to the interior for profitable trade.³ Prices were at a comparatively low level, and the resources of the interior could not be utilized to advantage except by improving the roads and other means of inland transportation. But the foreign colonial monopolies were now suddenly impaired, and the commerce of the world was thrown into American bottoms. Our export trade in 1791 amounted to only \$19,012,041. By 1794 it had risen to \$33,036,233, while in 1807 it reached \$108,343,150. The change in character of vessels engaged in

**The American
trade advance-
ment**

¹ Earle, Stage-coach and tavern days, 232.

² Weld, I, 110.

³ See Note 2 on opposite page.

this trade was even more striking. In 1789 nearly half of the American carrying trade was in the hands of foreigners; by 1796 the number of foreign carriers was reduced to six per cent, and at no time during the next twenty years did it exceed seventeen per cent.¹ The United States not only carried the commerce of the world, but it also in large measure came to be a "free-trade" centre. Prior to the renewal of hostilities after the peace of Amiens, we have no official record of the foreign products passing through our ports, but after 1803 more than half of the goods

¹ Seybert, Statistical annals of the U. S., 93.

² STATEMENT SHOWING THE AMOUNT OF AMERICAN AND FOREIGN TONNAGE IN THE FOREIGN TRADE OF THE U. S., 1789 TO 1807:

YEAR	American Vessels (less 000)	Foreign Vessels (less 000)	Total (less 000)	Percentage of Foreign to Total
1789.....	127	106	233	45.6
1790.....	355	250	585	41.4
1791.....	363	240	604	39.8
1792.....	414	244	658	37.0
1793.....	447	163	611	26.7
1794.....	525	82	608	15.8
1795.....	580	56	637	8.9
1796.....	675	46	721	6.2
1797.....	605	72	677	10.7
1798.....	522	87	610	14.4
1799.....	626	107	734	14.6
1800.....	682	123	806	15.4
1801.....	849	158	1,007	15.7
1802.....	787	143	930	15.4
1803.....	787	163	951	17.2
1804.....	821	122	944	12.9
1805.....	922	87	1,010	8.7
1806.....	1,044	90	1,134	6.8
1807.....	1,059	86	1,146	7.3

— Pitkin, Statistical view of the U. S. (1835 ed.), 363.

which came to our shores were destined to other parts of the world.¹

Not only did the colonial trade of England and France fall into our hands at this time, but the neutral American flag supplanted those of other nations abroad. Because of the arbitrary and repressive decrees of these powers, the risk to shipping was great, but the profits were in proportion, sometimes amounting to one hundred or two hundred per cent. A complete change was wrought in the North Atlantic seaboard. American tonnage increased as never before, and the shipyards of Maine and New Hampshire bristled with spars and stays. In 1791 our total shipping (registered, enrolled, and licensed) amounted to 478,377 tons; by 1794 it had increased to 628,816 tons, and in 1807, before the embargo, it had risen to 1,268,548 tons.² The result was that manufacturing and internal improvements were neglected; and capital in the North turned toward foreign trade, shipbuilding, and commercial banking,³ — the equipment essential to the utilization of our peculiar trade advantage.

¹ TABLE OF AMERICAN EXPORTS SHOWING TONNAGE IMPORTED AND RE-SHIPPED TO FOREIGN PORTS.

YEAR	Domestic Origin (less 000)	Foreign Origin (less 000)	Total (less 000)
1803	42,205	13,594	55,800
1804	41,467	36,231	77,699
1805	42,387	53,179	95,566
1806	41,253	60,283	101,536
1807	48,699	59,643	108,343

² Ibid., 317.

— Seybert, 93.

³ In 1790 there were four banks in the United States. In 1804 the number was fifty-nine. In 1790 the capitalization of state banks was nine millions of dollars; in 1804 it was about forty millions. — Crawford's Report on the condition of banks, January 3, 1836: 216.

In the South another advantage presented itself which gave rise to a distinct line of development. Before 1780 cotton was grown for ornament in gardens. In 1784 a consignment of eight bags was seized at Liverpool by the customs officers, who were unwilling to believe that so much could come from America.¹ The increasing demand in Europe placed a premium on the fibre. Whitney's invention of the cotton-gin cheapened its preparation for market to about a fifth of its former cost, and much land in the South was converted into cotton fields. Migration set in toward the unoccupied portions of the cotton belt, and there was soon a marked increase in exports. The plantations generally did not produce foodstuffs in commercial quantities; many did not produce enough for home consumption, preferring to buy from the West and North. Cotton and tobacco were the staples of production as well as of trade; for by river barge and wagon they could bear the expense of shipment for a considerable distance and still return a profit. The development in cotton culture can best be understood when considered in the light of trade statistics. In 1792 only 138,328 pounds of American cotton found its way to foreign markets. In 1807 there were exported 63,944,459 pounds, and the income to the South from this source alone was estimated at \$14,232,000.² Exports of tobacco decreased during this period, as tobacco was grown only where it could be produced with greater profit than cotton. After 1793, however, the average annual income from this source amounted to over \$6,000,000. Rice was grown only along the coast, where the transportation problem presented few difficulties. For the clearing of new lands and the cultivation of cotton, tobacco, and rice, slave labor could be employed to advantage. It was in the plantation and its slave equipment,

Changes in the
South

¹ McMaster, I, 62.

² See Note 4 on page 20.

therefore, that the rapidly increasing wealth of the South found opportunity for profitable investment, for to a majority of the people neither manufacture nor shipping proved attractive.

The immediate effect of the European wars upon the grain-growing regions of the West was to increase the demand for wheat. Before these wars the drift of the population in England had been toward the towns; and the use of agricultural lands for wool-growing created a strong demand for foodstuffs from abroad; but the crop failures of Europe, the French Revolution, and the twenty-four years of almost continuous warfare which followed, transferred this demand to America.

Prices of cereals rose to twice their former height.¹ The average price of flour during the seven years from 1785 to 1793 had been about \$5.40 a barrel; the average price from 1793 to 1806 (the two years of peace, 1802 and 1803, excluded) was \$9.12.² Such was the inducement to grain growing during this period.³

¹ Sheffield, Remarks on the deficiency of grain, 114 (London, 1800).

² Parliamentary accounts and papers, misc. v. I (1821), XVII.

³ See Note 2 on opposite page.

⁴ TABLE SHOWING INCREASE IN EXPORTS OF COTTON FROM THE U. S.,
1792 TO 1807

YEAR	Pounds Exported	YEAR	Pounds Exported
1792.....	138,328	1800.....	17,789,803
1793.....	487,600	1801.....	20,911,201
1794.....	1,601,760	1802.....	27,501,075
1795.....	6,276,300	1803.....	41,105,623
1796.....	6,106,729	1804.....	38,118,041
1797.....	3,788,429	1805.....	38,390,087
1798.....	9,360,005	1806.....	37,657,465
1799.....	9,532,263	1807.....	63,944,459

— Pitkin, III.

Back from the north Atlantic coast radiated rich valleys, — large tracts of agricultural lands which were well adapted to grain growing. A rush set in for the unclaimed resources of New York, Pennsylvania, and Maryland; and for a time the tide of migration moved to the westward along the Ohio and the border of the Great Lakes.¹ Those who cultivated lands near the coast shared in the increased prosperity due to the European disturbance, but unless they could obtain better means of transportation, those who had located inland soon found that they could profit little. Grain as compared with cotton and tobacco was a low priced product. At best the cost of transportation was ten dollars a ton for each hundred-mile haul; in many places it was much higher.

¹ Winsor, Westward movement, 504-12.

² TABLE SHOWING EXPORTS OF FOOD PRODUCTS FROM THE U. S., 1791-1807

YEAR	Wheat bu. (less 000)	Flour bbls. (less 000)	Corn bu. (less 000)	Meal bbls.	Beef bbls.	Pork bbls.
1791.....	1,018	619	1,713	351	62	27
1792.....	853	824	1,964	263	74	38
1793.....	1,450	1,074	1,233	189	75	38
1794.....	698	846	1,505	241	100	49
1795.....	141	687	1,935	512	96	88
1796.....	31	725	1,173	540	92	73
1797.....	15	515	804	254	51	40
1798.....	15	567	1,218	211	89	33
1799.....	10	519	1,200	231	91	52
1800.....	26	653	1,694	338	75	55
1801.....	239	1,102	1,768	919	75	70
1802.....	280	1,156	1,633	266	61	78
1803.....	686	1,311	2,079	133	77	96
1804.....	127	810	1,944	111	134	111
1805.....	18	777	861	117	115	57
1806.....	86	782	1,064	108	116	36
1807.....	776	1,249	1,018	136	84	39

— Pitkin, 96, 102, 105.

This left much of the land in New York, Pennsylvania, and Maryland outside the range of profitable use, even at the new price level; and western Virginia, Tennessee, Kentucky, and Ohio were almost entirely cut off from a market except by way of the Mississippi. It is this situation which caused Washington, Jefferson, and other public leaders so much concern for the political integrity of the nation. A whole empire of rich territory, with no outlet except by way of New Orleans or the St. Lawrence; a territory fast filling up from the Atlantic seaboard, and for the relief of which no effective measures were being taken; this was a condition to cause alarm to those with mental horizon broad enough to see it. The possibility of the Aaron Burr plot lay in the spirit of unrest which prevailed in that region. The discontent of the loyal pioneers who had crossed the Alleghanies, and the indifference to American ideals of those who had come to the Mississippi valley from France and Spain, afforded an opportunity which the dethroned democratic leader sought to utilize in the furtherance of his scheme. The narrow vision of the people whose interests lay on the seaboard, and the failure of men in public life to comprehend the importance of transportation in shaping public opinion and political destiny, nearly lost to the United States a territory which gives us a national economy superior to that of any other people. The effect, therefore, of the Napoleonic wars on the Mississippi valley, and also on the interior districts of Pennsylvania and New York, and for that matter of New England itself, was to build up a distinct agricultural interest, which demanded that its economic needs be given prompt attention and effective relief.

THE CONFLICT OF ECONOMIC INTERESTS IN THE UNITED STATES

Before 1807 the country had come to be divided into three sections: the commercial, shipbuilding East, the cotton

and tobacco exporting South, and the isolated grain-growing interior, linked with which was a languishing manufacturing interest on or near the seaboard. Beyond a limited range the producing portion of our population could not participate in the profits of the European trade. The grain growers demanded a market, and the manufacturers saw their profits swept away by an influx of foreign goods. These were the interests which suffered from the diversion of capital to shipbuilding and foreign trade. Both looked to internal improvements as a solution of their troubles; their only hope was in a home market, — in better roads, and in the development of the resources about them.

It was at this time also that a new school of political economy was developed, — one opposed to the English Ricardian philosophy. Represented by Hamilton and other able writers, including the German List (whose native land suffered from industrial and commercial disability similar to that of the United States), the "National school" of political economy had its beginning. This soon found many converts on both continents.

The popular revolutionary doctrine of *laissez faire* was in a measure lost sight of; in the United States agriculturist and manufacturer turned to the national government for relief.¹ But so long as the administration remained in the hands of the foreign trade party, the way was blocked to internal improvement. During the first three administrations after the adoption of the constitution, the individualistic republicans had been unable to gain control of the government; but with the admission of Kentucky, Tennessee, and Ohio, and the settlement of the parts of the seacoast states remote from transportation facilities, the anti-commercial constituency gained the balance of power. It was to the voters of these

¹ Hill, Tariff policy of the U. S., 75-107.

new regions that Jefferson owed his success;¹ and it was to satisfy the demands of the West for an outlet to the Gulf that Louisiana was purchased. To satisfy the insistent demand for internal improvements the national government also built the Cumberland road, and contributed to many other transportation projects. It was the open hostility of the West and the South toward the commercial East which forced the embargo, and broke down the domination of the seaboard interests in national affairs.

¹ Hill, 107-32.

CHAPTER II

THE EMBARGO, THE SECOND WAR WITH GREAT BRITAIN AND THEIR EFFECT UPON TRANSPORTATION DEVELOP- MENT

THE extent to which shipping interests were crippled by the embargo and non-intercourse acts is shown by Lambert, who thus describes New York in 1808: "The port, indeed, was full of shipping, but they were dismantled and laid up; their decks were cleared, their hatches fastened down, and scarcely a sailor was to be found on board. Not a box, bale, cask, barrel, or package was to be seen upon the wharves. Many of the counting-houses were shut up, or advertised to be let; and the few solitary merchants, clerks, porters, and laborers, that were to be seen were walking about with their hands in their pockets. . . . The coffee-house was almost empty. . . . The streets near the water-side were almost deserted, the grass had begun to grow upon the wharves."¹

The second war with Great Britain was forced upon the seaboard interests; first came the embargo and non-intercourse acts, then two years of open hostilities which drove American commerce from the seas. During the seven years from 1808 to 1815 commercial capital suffered, and the people of New England were on the verge of secession.² After the war of 1812 a solid representation from the interior fastened upon the country the tariff of 1816, and this effect-

**Economic sig-
nificance of the
Hartford con-
vention**

¹ Lambert, *Travels through Canada and the U. S.*, 1806-1808: II, 64-5.

² Adams, *United States*, II, IV, VII, VIII, *passim*.

ually shut the doors of foreign trade, except that which was based upon domestic production and consumption.¹ No longer could the world's trade clear to better advantage through American ports. The manufacturer was given protection in his home market, and measures were adopted for works of internal improvement. Profitable investment of the increasing capital of the seacoast was, therefore, limited to manufacture and the development of the interior.

This period was marked by a growth of sentiment in favor of home industry and home markets in the South as well as in the North; for restrictive legislation had also cut off the foreign demand for cotton, tobacco, and rice.² Societies were now formed for the promotion of manufactures. Leading citizens of Baltimore met in 1807 and, after discussing a plan for the organization of a company for spinning cotton and wool and making textile machinery, prepared an address to the people of Maryland urging coöperation in the upbuilding of home industry.³ Like movements were set on foot in Virginia and the Carolinas. Companies were organized in

The new political alignment

¹ Adams, IX, 113.

² TABLE SHOWING DECREASE IN INCOME OF THE SOUTH FROM COTTON AND TOBACCO

Cotton Exports (less 000)				Tobacco Exports (less 000)			
1807 ..	\$14,232	†1812 ..	\$ 3,080	1807 ..	\$5,476	†1812 ..	\$ 1,514
*1808 ..	2,221	†1813 ..	2,324	*1808 ..	838	†1813 ..	319
*1809 ..	8,515	†1814 ..	2,683	*1809 ..	3,774	†1814 ..	232
1810 ..	15,108	1815 ..	17,529	1810 ..	5,048	1815 ..	8,235
1811 ..	9,652	1816 ..	24,106	1811 ..	2,150	1816 ..	12,809

* Embargo and non-intercourse.

† War.

— Seybert, Statistical annals of the U. S., I, 147.

³ McMaster, United States, III, 500.

the leading cities, and Calhoun and others became active in the movement for protection.¹

APPEALS TO THE NATIONAL GOVERNMENT AFTER THE SUCCESS OF THE PARTY OF THE INTERIOR

Many attempts had been made to obtain federal aid to internal improvements before 1812. After the election of Jefferson, congress took its first step to aid in the construction of roads leading to the West. The enabling act for the state of Ohio (1803) stipulated that one-twentieth of the net proceeds of the sales of public lands lying within its borders should be set apart to provide for roads from the navigable waters of the East to the interior. It was further provided that three per cent of the net receipts from this source should be used within the state, leaving two per cent for general improvements.² In 1806 an initial appropriation of \$30,000 was made out of this fund for the Cumberland road.³

The inadequacy of private capital and state credit for works of a magnitude essential to the development of the interior brought the supporters of the administration to the general government for aid. In 1805 the Chesapeake and Delaware canal company laid a memorial before the senate,⁴ and the general assembly of Kentucky submitted an appeal for assistance in the opening of a canal around the falls of the Ohio below Louisville.⁵ These overtures met with encouragement, though not with substantial aid at that time. So much was the administration impressed with the needs of the interior that, in 1806, Jefferson thought the subject worthy of special consideration in his message to congress. To satisfy the qualms of his strict construction supporters, he recommended

¹ Calhoun, Works, II, 163-73. ² Ibid., II, 357.

² Stat. at large, II, 225.

⁴ Amer. state papers, misc. I, 454-6.

⁵ Ibid., 419, 453, 479.

an amendment to the constitution which would expressly provide for federal support to internal improvements.¹ Petitions continued to come in. In 1807 congress instructed the secretary of the treasury to investigate, and it was in response to this request that Gallatin submitted his famous report, in which he recommended a comprehensive scheme of canals and roads, involving an expenditure of twenty millions of dollars.² But notwithstanding the urgent need, the disturbances leading to the outbreak of hostilities with Great Britain were sufficient to defer action.

DEVELOPMENT OF RIVER TRANSPORTATION BY PRIVATE CAPITAL

The inland routes which required the least capital to utilize in a primitive way were the rivers. Here the chief obstacle was the current. In the early nineteenth century, long lines of rafts, flatboats, and "arks" might be seen floating down the Connecticut, the Hudson, the Susquehanna, and the Potomac.³ There were 2800 miles of rivers tributary to the Atlantic seaboard which were navigable,

¹ Richardson, Messages, I, 409-10.

² Amer. state papers, misc. I, 724-921.

³ It was claimed that in 1790 one hundred and fifty thousand bushels of wheat came down the Susquehanna as far as Middleton, Pennsylvania. In 1814 a resident of Harrisburg saw eighty rafts, sixteen arks, and twenty boats pass in one day, and estimated that this procession continued for almost a month. From Milton on the West Branch, 70,000 hushels of wheat descended the Susquehanna during one season (1821), and "Judging from those who live near the River not less than 500,000 bushels of wheat besides flour, whiskey, etc., have been sent out of the branches during the same season." In 1825 a citizen of Baltimore estimated the trade of that city with the Susquehanna as follows: 445,000 barrels of flour, 200,000 hushels of grain, 10,000,000 feet of lumber, and other miscellaneous articles valued at \$100,000, the total valuation being estimated at about \$650,000. By 1830 this Baltimore trade exceeded \$1,000,000. — Leutscher, Canals east of the Alleghany mountains, Ch. II.

or which needed only to be cleared of snags and rocks to render them available for use by small craft. It was estimated that on the Eastern slope there were about 25,000 miles of streams which might be utilized by the construction of locks and canals. In the Mississippi valley there were 14,000 miles of navigable rivers, and about 75,000 miles more which were considered possibilities. But with a three- or four-mile current it was impracticable to row, pole, or warp a boat and cargo up-stream for a long distance. The result was that along those streams which nature had provided as highways, the producer first built his boat out of the timbers of the forest, then loaded it with the produce of his farm or mill, and floated down-stream to market. Upon reaching his destination, he abandoned his craft, and returned by stage or on foot. This was indeed an expensive process, — expensive in time, expensive in funds, and expensive in human effort. It was an expense of production, however, and one which did not require capitalization.

There were several different kinds of river boats. The pirogue was the first improvement made by the white man upon the Indian canoe. It was hewn out of a log, but split lengthwise and widened by inserting a middle section of board. The barge was a large, flat-bottomed boat with wide beam. The flatboat was a later variety, with box-like bottom and sides, covered over throughout its length.¹ A type of flatboat used on the Delaware and the Schuylkill is thus described: "They were sixty feet long, eight feet wide, two feet deep, and when laden with fifteen tons drew twenty inches of water. The stern and bow were sharp and decked; a running board extended the whole length on either side. The boat carried a mast with two sails and was manned by a crew of five men. One remained at the stern with a long oar for steering and two on each side with setting poles

¹ Hall, *Statistics of the West*, 218-22.

for pushing them forward.”¹ When rigged out with a small house or cabin, these boats were called “arks.” It was in such a craft that Aaron Burr embarked at Pittsburgh for his trip to New Orleans.² We have this description of the toilsome process of poling up the Mohawk river in the early nineteenth century: “These [poles] are generally from eighteen to twenty-two feet in length, having a sharp pointed iron, with a socket weighing ten or twelve pounds affixed to the lower end; the upper has a large knob, called a button, mounted upon it, so that the poleman may press upon it with his whole weight without endangering his person. This manner of impelling the boat forward is extremely laborious, and none but those who have been for some time accustomed to it can manage these poles with any kind of advantage. Within the boat on each side is fixed a plank running fore and aft, with a number of cross cleets nailed upon it, for the purpose of giving the poleman a sure footing in hard poling. The men after setting their poles against a rock, bank or bottom of the river, declining their heads very low, place the upper end or button against the back part of their right or left shoulders (according to the side on which they may be poling), then falling down on their hands and toes, creep the whole length of the gang-boards and send the boat forward with considerable speed.”³

With such a picture, it is easy to understand that the dominant need in river navigation was the application of some more efficient and less expensive means of propulsion.

The idea of applying steam for this purpose was as old as the knowledge that it could be utilized as a mechanical force. In 1736 Jonathan Hulls, an English clockmaker, obtained a patent for a device for pro-

¹ Bolles, Pennsylvania, II, 286.

² McCaleb, Aaron Burr conspiracy, 24-5.

³ Schultz, Travels on an inland voyage, I, 5-6. (1810.)

PELLING a boat by steam, and in 1737 he published a description of his invention. His idea was to have a steam engine work a paddle-wheel attached to the stern of a sailing vessel, to be used in a calm, and to enable the vessel to get in and out of port unassisted. He also proposed to have a smaller boat equipped as a tug to lie in the harbor and serve other vessels. "How often," said he, "does a merchant wish that his ship were on the ocean, when if she were there the wind would serve tolerably well to carry him on his intended voyage, but does not serve at the same time to carry him out of the river, etc., he happens to be in, which a few hours' work of this boat would do."¹ He even went so far as to consider the comparative cost of running by steam and sail. But at this time little interest was felt in inland commerce, and the sail satisfied the coasting trade. Hulls made no practical demonstration of his ideas, and they were not taken seriously.²

During the industrial revolution, canals were built from the coast to the cities of the interior of the British Isles, and, as they were without current, boats could readily be moved by animals. The steamboat for practical application to transportation, therefore, awaited development in the New World. When attention was turned to inland commerce after the Revolutionary war, several Americans applied themselves to the task. James Rumsey, of Berkeley

¹ Quoted by Preble, *Hist. of steam navigation*, 9.

² The ridicule to which he was subjected is evident from this bit of doggerel, which was sung by the boys in his native town a century after his death.

"Jonathan Hulls,
With his patent skulls,
Invented a machine
To run against wind and stream,
But he, being an ass,
Couldn't bring it to pass,
And so was ashamed to be seen."

— *Notes and Queries*, III, 23, 69.

county, Virginia, constructed a rude model, which he exhibited in 1784 on the Potomac. Washington was one of those invited to witness the trial of this device, and with the other spectators he subscribed to the following testimonial: "I have seen the model of Mr. Rumsey's Boats constructed to work against stream; have examined the power upon which it acts; — have been an eye witness to an actual experiment in running water of some rapidity; & do give it as my opinion (although I had little faith before) that he has discovered

the Art of propelling Boats, by mechanism & small manual assistance against rapid currents; — that the discovery is of vast importance — may be of the greatest usefulness in our inland navigation."¹ It is to be noted that in this statement there is no reference to the nature of the motive power, as Rumsey feared that publicity would enable others to utilize the principle before he had fully developed his mechanism. There was little knowledge in the United States of the steam engine at the time, and Rumsey, like Hulls in England, failed to make his work effective.²

About the same time, John Fitch was at work upon a model in Philadelphia. At first he attempted to finance his invention by selling maps of the new West. Later he succeeded in interesting local capital, organized a stock company, and in 1787 propelled a boat on the Delaware in the presence of the members of the constitutional convention. The following year he constructed a small stern-wheeler, which made several trips from Philadelphia to Burlington. At the time, this was the greatest distance ever travelled by a steamboat. As the second boat was not considered fast enough, a third was built, and the machinery so altered that it attained a speed of eight miles an hour.

¹ Washington, Writings (Ford ed.), X, 402.

² Wier, James Rumsey, *Engin. Mag.*, IX, 878-82; Purdy, Steam navigation, Tenth census, IV, 659-62.

This boat was put on a regular route in 1790, but the choice of the Delaware was unfortunate; for there was little traffic. The boat therefore failed to pay expenses, and the company went out of business. Fitch in 1790 sought from congress "an exclusive right to the use of steam to navigation,"¹ but he seems to have lost faith in the utility of his invention, for two years later he wrote to David Rittenhouse: "I conceive that steam navigation will be the second mode of Navigation, but can never take the preference of a fair wind, as air is much cheaper than steam."² It is to be observed that these experiments were tried at a seacoast town which had no means of communication by water with the interior. The men who interested themselves in Fitch's invention saw little encouragement to develop it.³

It was not until 1807 that the steamboat became a commercial success. At this time New York was becoming well settled; and as the Hudson was a natural highway, a boat which could drive against wind and stream had every promise of success. Robert Fulton, who had been interested in the problem of steam navigation since 1802, returned from Europe after several years of investigation, and brought back one of Watt's engines. He obtained the financial coöperation of Chancellor Livingston, and together they obtained a monopoly of steam navigation in New York waters. A boat was fitted with the Watt engine, and a successful trip was made from New York to Albany and return.⁴ The route yielded large profits from the start, and other boats were built. By 1813 six boats were doing a profitable business on the Hudson. The success of Fulton and Livingston proved

Success of the
steamboat on
the seaboard

¹ Amer. state papers, misc. I, 12.

² Westcott, Life of Fitch, 334.

³ Bullock, Development of steam navigation, *Conn. Mag.*, IX, 440-55; *Amer. Pioneer*, I, 31-7. (1842.)

⁴ Purdy, Robert Fulton, *Engin. Mag.*, IX, 868-77; Bullock, ut supra, 765-71; *Amer. Pioneer*, I, 151-6.

attractive to others. Crowded out of New York's waters by the monopoly, John Stevens in 1809 took a steamboat around from Hoboken into the Delaware. The *Phoenix* now found business so good in those waters where Fitch had failed that it was soon followed by two other boats. Soon the whole Atlantic seaboard, including the St. Lawrence, was supplied with steam craft.

But enterprise in steamboat navigation was not confined to the coast. Business opportunities in the Mississippi valley attracted the attention of one Nicholas Roosevelt, who proposed to Fulton and Livingston that he would make a trip to New Orleans to survey the prospects for an inland water route, with the understanding that they should finance a steamboat line if his report were favorable. So favorable was it that he was placed in charge of the construction of a river boat at Pittsburgh, and in 1811 the *New Orleans* made her maiden trip down the Mississippi. Thereafter, Roosevelt's boat took a regular route between New Orleans and Natchez. Other boats were added, but it was not until 1815 that a voyage was made up-stream from New Orleans to Louisville and Cincinnati. After assisting Jackson in the campaign about New Orleans, the *Enterprise*, taking advantage of high water, steamed to Louisville in twenty-five days. In 1817 the *Washington* accomplished the same feat while the river was within her banks, and the public became convinced of the practicability of up-stream navigation. The same year the *Shelby* reduced the time to twenty days, and by 1823 fifteen days sufficed. With the success of the steamboat, the middle West was opened to rapid communication with the gulf.¹

¹ Hall, 125-7; Preble, 66-72.

DEVELOPMENT OF WAGON ROADS TO THE INTERIOR

From 1807 to 1815 two changes had a marked effect upon the national attitude toward internal improvements. Before the outbreak of the European wars, manufactures had made some progress in New England and in Pennsylvania. During the first struggle, and before the peace of Amiens, the only serious obstacle to American industry was the tendency to divert capital to wheat raising, shipbuilding, and foreign trade. Prices were high, and the makers of goods found encouragement in large profits. With the cessation of hostilities, American manufacturers looked to congress for protection, for foreign goods poured into the country in such quantities and at such prices as to threaten the destruction of domestic production. The renewal of the Napoleonic struggle, with the Milan and Berlin decrees, the orders in council, and the long embargo, again shifted the trade advantage to America. The movement for the protection and encouragement of home industry was now renewed. Prizes and bonuses were offered, trade parades were held, and other measures were adopted to encourage home industries. Following the peace of 1815 these infant industries were again threatened by the arrival of whole shiploads of foreign manufactured goods, which were sold at auction to the destruction of prices for articles of American manufacture.¹

At the most, however, the manufacturing population was relatively small, but the disturbances to industry from 1815 to 1818 were such as to throw many others out of employment, and to bring to the verge of bankruptcy and starvation those who had been engaged in shipbuilding and foreign trade. A great exodus to the interior was the result. In wagons, on horseback, or

Increasing de-
mand for Amer-
ican products

Migration to
the Mississippi
valley

¹ Stanwood, Amer. tariff controversies, I, 168-70.

on foot — sometimes using hand-carts, sleds, and wheelbarrows to carry their provisions and light luggage — emigrants crowded the wooded paths that led to the West, where they might find conditions more favorable to independent livelihood.¹

All these conditions conspired to increase the depression in the East, and drive her people into agriculture and the development of the interior; while the opening of the Mississippi by the steamboat added to the attractions of the rich valleys in the middle West. But upon his arrival in the West the newcomer found himself beyond the range of any market except New Orleans. To reach this market he "would produce or get together a quantity of corn, flour, bacon, and such articles. He would build a flat-bottomed boat on the shore of some river or large creek, load his wares into it, and, awaiting the rise, with a few of his negroes to assist him, would float down to New Orleans. The voyage was long, tedious, and expensive. When he arrived there he found himself in a strange city, filled with sharpers ready to take advantage of his necessities. Everybody combined against him to profit by his ignorance of business, want of friends or commercial connections; and nine times out of ten he returned a broken merchant. His journey home was performed on foot, through three or four nations of Indians inhabiting the western parts of Mississippi, Tennessee, and Kentucky. He returned to a desolate farm, which had been neglected whilst he had been gone. One crop was lost by absence, and another by taking it to market. This kind of business was persevered in astonishingly for several years, to the great injury and utter ruin of a great many people."² It was the demand for safe transportation arising out of this situation which made Roosevelt's steamboat enterprise a success.

¹ Turner, *Rise of the new West*, 79-83.

² Ford, *Illinois*, 98-9. (1854.)

DEVELOPMENT OF THE COASTWISE WAGON ROADS AS A
RESULT OF THE BLOCKADE

The British blockade of our coast during the war of 1812 had a marked effect upon the development of inland routes of transportation, as may be seen from the following: "The interruption of the coasting trade was indeed a very serious affair. For years past that trade had given occupation to thousands of coasters and tens of thousands of sailors. The shoes made at Lynn, the Yankee notions of Connecticut, the cotton cards, the domestic cottons, the playing cards produced in New England, the flour of the Middle States, the East India goods brought in from abroad, had found a ready market at Charleston, Savannah, and Augusta, whence great quantities of rice and cotton were brought North. On the arrival of the British fleet this trade, no longer to be carried on in safety by water, began of necessity to be carried on by land. At first some merchants at Boston, having chartered a few wagons, despatched them with loads to Philadelphia, and even to Baltimore. This was enough. The hint was taken. A new industry sprang up, and by early summer the roads leading southward exhibited one continuous stream of huge canvas-covered wagons tugged along by double or triple teams of horses or of oxen. No distance was then too great, and hundreds of them wound their way from Salem and Boston to Augusta and Savannah. An estimate made towards the close of the year [1814] places the number of wagons thus employed at four thousand, and the number of cattle, horses, and oxen at twenty thousand; nor does this seem excessive, for a traveler who drove from New York to Richmond declares that he passed two hundred and sixty wagons on the way."¹

¹ McMaster, IV, 218.

REVIVAL IN TURNPIKE AND BRIDGE CONSTRUCTION

Both overland trade and westward migration drew attention to the importance of good roads; both swelled the receipts of turnpike companies, and gave encouragement to investment of local capital in transportation improvement.

The capitaliza- By 1804 the Lancaster road had been extended
tion of turn- to Pittsburgh, and a regular stage line estab-
piques lished which made a trip each way once a week.¹ State governments lent every encouragement to the building of turnpike roads, even to the extent of subscribing to their stock. From contemporary writings and charter grants, it is estimated that nearly eight hundred turnpike companies were organized before the end of the war of 1812. Pennsylvania was pre-eminent in granting liberal charters, and toll rights, thereby encouraging the people of the more thickly settled districts to make such improvements for themselves. The corporations thus formed had little difficulty in obtaining capital subscriptions, whether for the construction of turnpikes, or bridges, or for the operation of ferries.² To the stock of these corporations, several of the states subscribed in varying amounts. Although a few toll roads were constructed before that time, the turnpike movement may be said to date from the opening of the nineteenth century. Turnpikes (so called from the revolving, or turning bar, or pike which when set across a toll road prevented passage until charges were paid) were macadamized or otherwise improved at a cost varying from \$500 to \$10,000 per mile.³ Almost without exception they followed in a general way the old lines which had been worked out when travel on foot or on horseback was the chief method of com-

¹ Sharpless, Pennsylvania, 255.

² Gordon, Gazetteer, of Pa., 35-8, 53-4. (1832.)

³ Warden, Statistical, political, and historical account of the U. S., III, 365. (1819.)

munication; but wherever possible they were made straight, going over and not around hills and other obstacles. When the Boston and Salem turnpike was built, a small but deep pond was encountered, but instead of going around, the road crossed on a floating bridge.¹

The construction of bridges and the operation of ferries were parts of this larger turnpike movement, and like the turnpikes themselves, they were usually disappointing to those who had invested with the hope of large dividends.

Bridge and ferry companies At best this movement did but little to supply the great need for improved transportation.

To passenger service it was a great boon, in that it added much to personal comfort, though the time and cost of travel were little reduced. It required five dollars and fifty cents to pay tolls from Philadelphia to New York, besides the hotel bills and other expenses of the road. It took a week to go from Philadelphia to Pittsburgh.² What the country most needed — a cheap method of handling the bulky products of the interior — was not supplied. Freight was carried upon the turnpike with great difficulty and expense, and heavy goods were compelled to remain untouched on account of the high tolls.³

REVIVAL OF ATTEMPTS TO OBTAIN CAPITAL FOR CANALS

To meet this situation, canals had been proposed long before the period of turnpike building, and some surveys had been made, but because of lack of capital, construction was deferred. The earliest projects were for short cuts around rapids or falls, or between neighboring waters, but

¹ Melish, *Travels through the U. S.*, 78-9. (1818.)

² Sharpless, 255.

³ The cost of transporting one ton for one mile upon a wagon over a turnpike road averaged thirteen cents, whereas the cost of water transportation was less than one twenty-fifth of this charge. — Maryland state convention on internal improvements. (1825.)

bolder plans followed. The first canal of any importance actually begun in the United States was the
The canal as a local improvement two-mile cut through the rocks about the South Hadley falls of the Connecticut.¹ The Massachusetts legislature passed an act in 1792, incorporating the "Proprietors of the Locks and Canals on Connecticut River."² Work was begun at once with Dutch capital, and in two years the canal was completed. This canal was equipped with a curious inclined plane, the use of which seems to have been suggested by the Dutch. Of the machinery used, and its operation, we have this description:

"At the point where boats were to be lowered and elevated, was a long, inclined plane, traversed by an immense car of the width of the canal and of sufficient length to take in a boat, or a section of a raft. At the top of this inclined plane were two large water wheels, one on either side of the canal, which furnished by the aid of the water of the canal, the power for elevating the car, and for balancing and controlling it in its descent. At the foot of the inclined plane the car descended into the waters of the canal, becoming entirely submerged. A boat ascending the river, and passing into the canal, would be floated directly over and into the car, the brim of the latter, of course, being gauged to a water level by its elevation aft in proportion to the angle of inclination of the traverse way. The boat being secure in the car, the water wheels, which by their common shaft were attached to the car through two immense cables, the car was drawn up to a proper point, when the boat passed out into the canal above."³

The Santee canal in South Carolina was the first large work of this kind constructed in the United States. It con-

¹ Accompaniment to Mitchell's map of the U. S., 216. (1836.)

² L. 1788-99: 113.

³ Holland, *Western Mass.*, I, 306; see also Dwight, *Travels in New England and New York*, I, 321-4.

nected the Santee river with the Cooper river at Charleston, and it was opened in 1800. Its length was twenty-two miles, and its cost, \$600,000.¹

A much more important project was the Middlesex canal in Massachusetts, a charter for which was obtained in 1793.²

Canals in New England This canal extended from the Charles river to the Merrimac, twenty-seven miles, and was designed to attract to Boston the trade normally tributary to Portsmouth. Work was begun in 1794, and ten years later the canal was opened for traffic, though it was not entirely completed until 1808.³

The successful completion of the Erie canal, which became an assured fact long before its actual accomplishment in 1825, stimulated similar projects all over the country. The local strife between trade centres, combined with the local demand for outlet, set a number of private projects in motion. Boston, Philadelphia, Baltimore, and Georgetown were successfully appealed to for support for transportation routes which would enable them to compete with New York for the trade of the West. The Blackstone canal company, chartered by Rhode Island and Massachusetts in 1823, began the construction of a canal along the Blackstone river to connect Providence and Worcester, and this route was opened for traffic in 1828. Another New England project started at about the same time was for a canal to extend from New Haven northwards to Northampton, and on up the Connecticut valley into Vermont.⁴ Two companies were chartered for this purpose, the Farmington canal in Connecticut in 1822, and the Hampshire and Hamp-

¹ Holmes, *Annals of Amer.*, II, 416. (1826.)

² L. 1793, c. 21.

³ Dame, Middlesex canal, *Medford Hist. Register*, I, 33-51; Mann, An eighteenth century enterprise, *Ibid.*, VII, 1-19; Hopkins, Old Middlesex canal, *New England Mag.* (n. s.), XVII, 519-32; Amory, *Life of James Sullivan*, II, 361-73.

⁴ Miller, *Book of the U. S.*, 380. (1836.)

den canal in Massachusetts in 1823.¹ The Farmington canal was completed in 1830; but work on the Hampshire and Hampden project was for a time abandoned for want of funds, and the canal was not cut through to Northampton until 1835. While carrying a large traffic, this canal like the Blackstone canal was more beneficial to the general business of the section traversed than to those who held its stock. Other private works of this period upon which large sums were expended, were: the Delaware and Raritan canal, connecting Philadelphia with New York; the James River and Kanawha, — an unfinished canal project in Virginia; and the Chesapeake and Ohio canal, which was not extended further west than Cumberland.

Almost a year before the Erie canal was completed, Massachusetts determined to profit from the new thoroughfare of Western trade by opening a connecting waterway from the Hudson to Boston.² This was not a new project, for in 1792³ General Henry Knox had formed a corporation to unite the waters of the Connecticut river with Boston harbor, but the plan failed for want of financial support. A commission was appointed in 1825 to ascertain the practicability of the proposed canal, and in the report⁴ transmitted to the legislature in 1826, the commission declared that the work was practicable. Had it not been for the rapid advance of the railroad idea about this time, it would undoubtedly have been undertaken.⁵

On account of local needs, few canal or navigation companies had difficulty in obtaining their first subscriptions, but most of them experienced trouble in collecting assess-

¹ Love, Navigation of the Connecticut river, Amer. Antiq. Soc., *Proceedings*, 1902-3: 420.

² Address of William Eustis, January, 1825.

³ L. 1788-99: 131.

⁴ Report on the routes of canals, 152.

⁵ *Ibid.*, 174.

ments and in obtaining additional subscriptions. This timidity of investors, it now appears, was not without ground; for few of the private canal companies were able to bring their construction work to completion, and fewer still paid any dividends to their stockholders. The Middlesex canal was profitable until the building of a parallel line of railroad; the Montague canal, also in Massachusetts, yielded a fair return during the first twenty years following its completion in 1800.¹ The Delaware and Schuylkill canal may be cited as a third exception.² But it early became evident that public works of the number and magnitude required could be constructed only at national expense. As the constitution contains no direct provision for internal improvements, the subject became a party question.

From the first, congress had appropriated money for lighthouses, public piers, buoys, and other aids to navigation, and about such action there had been no dispute; for it was agreed that these matters lay strictly within federal jurisdiction.³ From the first, also, congress had been petitioned for appropriations for internal improvements. Most of these demands were local in character, and so were easily disposed of; but when the directors of the Chesapeake and Delaware canal asked congress to supply the funds which they had been unable to obtain from sales of shares, the question was forced to an issue. Two facts were incontestible, the general importance of the work, and the ability of the national government to carry it on in view of the revenue surplus in the treasury.

In another way congress had already committed itself to the support of public works. So long as the country was made up of states bordering on the Atlantic seaboard,

¹ Love, *ut supra*, 412.

² Second of that name, L. Pa. 1827; 23 cong. 1 sess., H. rep. no. 414.

³ Johnston, *Internal improvements*, Lalor, II, 568.

improvements were matters of interest to all alike; but with the admission of new states in the interior, and the prospect of future accessions to the westward as the country expanded, an element of injustice seemed to enter these appropriations, which benefited the seaboard states at the expense of all. The feeling of discontent was intensified by the fact that the favored states were more thickly settled, and therefore better able to incur the expense. With the admission of Ohio, however, this was remedied by the establishment of the five per cent land fund, and the self-interest of the seaboard was appealed to by the argument that the building of roads into the West would so stimulate sales of the public lands as to increase the national revenues.¹

The matter of national aid to internal improvements was again brought before congress in 1816 by Calhoun, who presented a bill providing for the direct construction of roads and canals and the improvement of waterways out of a fund to be created by setting apart the bonus and dividends received by the government from the United States bank. This bill, which was drawn up by Clay, passed through congress in 1817, but it was vetoed by Madison who, though favorably disposed toward public works, had inherited from Jefferson a doubt as to the rights of congress to participate in their construction without a constitutional amendment specifically granting the authority.² And Monroe, holding the same opinion,³ vetoed a bill for the repair of the Cumberland road, and submitted to congress a long statement of the principles involved in his decision.⁴ In the meantime, weary of waiting, New York had succeeded in building the Erie canal. Its success shifted the whole plan of promotion. With

The constitutional difficulty

¹ Johnston, *ut supra*, 568-9.

² Adams, IX., 148-53; Richardson, I, 584-5.

³ Richardson, II, 17-8.

⁴ *Ibid.*, II, 142-83.

credit established abroad, internal improvements were taken up by the states, and for the next two decades transportation interest centres in state capitalization through state funding.

It was during this period of struggle for means of transportation facilities adequate to meet the demands of those whose fortunes had been cast in the remote interior that the railroad became a subject of serious economic interest.

CHAPTER III

THE BEGINNING OF THE RAILROAD

NOTHING could be farther from the truth than the popular belief that Stephenson's "Rocket" was the world's first steam locomotive, and that before the epoch-making contest-locomotives in 1829, at Rainhill, on the Liverpool and Manchester, the advantage of the railway had not been recognized. Before the "Rocket" became famous many locomotives had been built and operated; and railways had been in active use for over a century, both on the continent of Europe and in England. For the earliest account of a railway in England we are indebted to Roger North, who in 1676 visited the coal mines at Newcastle-on-Tyne in company with his brother, Lord Keeper Guilford. In the course of a description of these mines, North said: "Another thing, that is remarkable, is their way-leaves; for, when men have pieces of ground between the colliery and the river, they sell leave to lead coals over their ground; and so dear that the owner of the rood of ground will expect 20 l. per annum for this leave. The manner of the carriage is by laying rails of timber, from the colliery, down to the river, exactly straight and parallel; and bulky carts are made with four rowlets fitting these rails; whereby the carriage is so easy that one horse will draw down four or five chaldron of coals, and is an immense benefit to the coal merchants."¹ According to

¹ North, *Lives of the Norths* (new ed., 1826), I, 281-2. For date, see I, 293. A Newcastle "chaldron" is 5300 pounds.

Robert Stevenson, these "way-leaves" or railways were in use before 1671.¹

IMPROVEMENTS IN THE RAIL

For many years the railway was to be seen only at mines, collieries, and iron works, where it was used to connect with a waterway, but it was generally regarded as a poor substitute for a canal. Yet, by degrees, changes in material and structure were effected which to the minds of a few far-seeing men promised eventually to bring it into general use. The first notable improvement was effected by securing the rail timbers to cross ties by means of pegs, and placing upon their bearing surface strips of hard wood, which when worn could be removed without disturbing the track. Then, to lessen friction and prevent abrasion, flat rods of wrought iron were substituted for the hard wood strips.² But the scarcity of lumber in England led to the introduction in 1767 of solid rails of cast iron, which were supported at the joints by blocks, first of timber and afterwards of stone. At first these rails were flat, but after a few years a flange or ridge was cast along the outer edge of each rail to keep cars from leaving the track. Subsequently the flange was transferred to the inner edge of the rail. "Edge-rails" were introduced in 1789, with a resulting gain in strength and decrease in friction. Because of the brittle nature of the material, these rails were but three or four feet long, and a great advance was therefore made in 1811, when by the use of wrought iron it became possible greatly to increase their length and so diminish wear at the joints. A few years later, 1815, further economy was effected by

**Timber rails
faced with iron**

Iron rails

¹ Stevenson, *Life of Robert Stevenson*, 115.

² Anderson, *On cast-iron rail-ways*, *Recreation in Agriculture*, IV, 198; Johnson, *Rural economy*, 232; Smith, *Facts and arguments in favor of adopting railways in preference to canals*, 15.

removing the flange from the rail and placing it on the wheels of the car.¹

THE WAGON OR CAR

The first railways were built upon a grade for the purpose of transporting heavy traffic down hill. The older practice was to put the whole load upon one large wagon or car.

Later it was found that a saving in construction could be made by dividing the load among several cars, connected by links or chains, which distributed the weight over a larger surface, decreasing wear, and increasing the tractive efficiency of the motive power.² This gradual development led to the wider application of the railway to transportation. In 1801 Doctor James Anderson of Edinburgh put forth a suggestion in the form of "Hints calculated to promote the internal prosperity of this country, to augment its produce, and to alleviate the pressure of the present times with regard to the high price of provisions." He not only proposed the general use of the railway to supplement artificial waterways, but he ventured to predict that "under proper management it may, perhaps, be made in some cases to supersede the use of canals where these are actually practicable."³ He planned that each car should rest upon a truck designed to run only upon the railway, and be removable so that it could be transferred by means of a crane to a similar truck adapted to common roads.⁴ By this method a train load could be distributed at points along the line without a break in bulk. Farmers could have cars of their own in which they might ship their grain, safely locked, to any part of the country.⁵ Accom-

¹ Jackson, *Lecture on railroads*, 10; Watkins, *Development of the American rail and track*, in *Report of the national museum*, 1889: 657; Smith, 18.

² Anderson, *ut supra*, 201; Smith, 15.

³ Anderson, *ut supra*, 198.

⁴ *Ibid.*, 203.

⁵ *Ibid.*, 205.

panying this suggestion he made a plea that the railway should never be made the subject of control by the "avaricious money-lender," or the "source of gambling traffic, similar to that which has taken place to such a vast extent in this country with regard to navigable canals."¹ "To guard against these evils," he declared, "all that is necessary is to prevent these railways from ever becoming *private property* on any account."²

In March 1802 Richard L. Edgeworth contributed an article to Nicholson's Journal "on the practicability and advantages of a general system of railroads, and the means of carrying the same into effect." Its importance justifies liberal quotation:

"Many years ago I formed the project of laying iron railways for baggage waggons on the great roads of England; but having consulted several of my friends, who were eminent mechanics, so many objections were started, that I for some time despaired of success. One great objection arose from the vast expence of massive rail-ways, and the continual cost of repairs. To obviate this difficulty, it occurred to me to divide the weight that is usually carried upon a single waggon into four or five portions, and to place them upon four or five small carriages: these carriages linked together would be as easily drawn as the frame load upon one waggon. In pursuance of this idea, about the year 1768, I presented models of three such carriages to the Society for the Encouragement of Arts and Manufactures, who, for this and other inventions in mechanics, honoured me with their gold medal; the date of which, and the journal of the Society may ascertain the early claim to this invention . . . I propose that by way of experiment iron rail-ways should be laid on one of the great roads, to the distance of ten or twelve miles from the metropolis, upon something like the following plan: four rail-ways should be laid on the land, raised on

¹ Anderson, *ut supra*, 210.

² *Ibid.*, 212.

sleepers of stone, so that their upper surface should stand about four inches above the road . . . On these should run light waggons, each containing not more than one tun and a half weight.

“I have mentioned four rail-ways. The two inside roads should be appropriated for waggons, and the two external rail-ways for coaches and chaises, &c. The left hand rail-way invariably to be followed by each species of carriage on its own road; so as to prevent the possibility of any carriages meeting on the frame rail-way. By appropriating the exterior tracks to light carriages, those which wished to pass others might turn off upon the waggon road, and resume their proper place after they wished to pass. Now to accommodate coaches and chaises, &c. to these rail-ways, I would have them carried, wheels and all, in cradles or platforms, *which should have wheels adapted to the rail-ways*. By these means no alterations would be necessary in any of the carriages commonly used; but the horses of any coach or chaise might, as soon as they had got out of town, walk up an inclined plane into the cradle or platform, and draw their respective carriages after them: the horses should then walk out of the farthest end of the platform, upon the road belonging to the rail-ways. They would then draw the chaise not upon its own wheels, but upon the wheels of the platform or cradle in which the chaise should be detained.

“For stage-coaches, similar platforms should be provided, and in these six inside and six outside passengers might travel at the rate of six miles an hour with one horse. Hackney, or gentlemen’s chaises might go at the rate of eight miles an hour with one horse, without interruption or delay. . .

“The chief convenience of this project arises from the mode of receiving and transporting on rail-ways every carriage now in use *without any change in their structure*, so that a traveler may quit and resume the common road at pleasure. . .

"It is not impossible by *slight circulating chains*, like those of a jack running upon rollers, to communicate motion between small steam-engines, placed at a considerable distance from each other; to these chains carriages might be connected at will, and when necessary they might instantaneously be detached. . ."¹

That other minds had been busied with the subject about the same time is shown by the fact that the year 1801 saw the incorporation of the Surrey Iron Railway company to transport coal and lime between the Thames near Wandsworth in Surrey, and Croyden and Reigate. This was the first public railway for which an act of Parliament was obtained. It was worked by horse-power only, and its short length and the consequent necessity for transshipment of traffic caused its failure.²

From this period until about 1820, only a few individuals appear to have regarded railways with any favor. In 1806, Samuel W. Johnson, an American, put out a book on "Rural Economy," in which he incidentally considered the subject. "Railways," he said, "nearly answer the purpose of canals, and are frequently called dry canals."³ He seems to have been indebted to Doctor Anderson, but he went further and suggested a vertical hoist by means of a crane as a substitute for the inclined planes which were in common use in England. For heavy traffic he recommended the adoption of railways in the United States, where they might be built along the side of highways and between neighboring ports.⁴ In 1807 Franz Anton von Gerstner proposed the construction of a railway instead of a canal to connect the Moldau with the Danube, — a work which was carried out under

¹ *Journal of Natural Philosophy, Chemistry, and the Arts* (2 ser.), I, 221-3.

² Farrer, in Traill, *Social England*, VI, 273.

³ Johnson, *Rural economy*, 232.

⁴ *Ibid.*, 234-5.

his direction twenty years later.¹ In 1813 he published at Prague an essay which was one of the earliest treatises to discuss railways, canals, and roads, scientifically.²

THE LOCOMOTIVE

The steam engine was called into existence not by the need for improved means of transportation, but by the failure of horse power to pump water out of mines of great depth.³ As soon, however, as its efficiency had been finally established by the experiments of Watt, patents were taken out for a variety of experimental locomotives even before the end of the eighteenth century, but nothing of a promising nature was produced.

Oliver Evans of Philadelphia was at work upon the steam engine contemporaneously with Watt, but his efforts, while interesting in themselves, were without direct result in the furtherance of steam locomotion. He constructed a dredging machine in 1801, which was mounted upon wheels and conducted under its own steam through the streets of the city to the Delaware, a mile distant.⁴ Evans' one contribution to science was the non-condensing, high pressure, steam engine which impelled this strange device.⁵ He had, however, a clear conception of the possibilities of steam when it should be properly applied to navigation and locomotion. He urged the construction of a steam railroad between New York and Philadelphia, and in 1809 attempted to form a company for this purpose. Writing in 1812 he said: "When we reflect upon the obstinate oppo-

¹ Smith, in Wood, *Practical treatise on railroads* (Amer. ed.), viii.

² *Ibid.*, viii-ix.

³ Sinclair, *Amer. and foreign locomotives*, New England Railroad Club, *Proceedings*, January, 1902: 6.

⁴ *New York Review*, III, 95-6. Evans presented his claims in 1812, in Niles, "Addenda to Volume III."

⁵ Thurston, *Hist. of the steam engine*, 153-4.

sition that has been made by a great majority to every step toward improvement; from bad roads to turnpikes, from turnpikes to canals, and from canals to rail-ways for horse carriages, it is too much to expect the monstrous leap from bad roads to rail-ways for steam carriages, at once. One step in a generation is all we can hope for. If the present should adopt canals, the next may try rail-ways with horses, and the third generation use the steam carriages . . . I do verily believe that the time will come when carriages propelled by steam will be in *general use*, as well for the transportation of passengers as goods, travelling at the rate of fifteen miles an hour, or 300 miles per day.”¹

In 1803 Richard Trevethick, a Cornish mine engineer, designed a steam carriage which was successfully operated upon common roads. His work, while not immediately productive of positive results, exerted great influence upon others who were busied with the devising of a successful locomotive.²

John Stevens of Hoboken, who had early interested himself in the subject of steam navigation, came forward in 1812 with a petition recommending to the state of New York the construction of a steam railroad in preference to the proposed canal from Albany to Lake Erie. In a pamphlet published that year, he outlined his plan for a railway entirely of wooden string pieces, supported on pillars raised several feet above the ground. But while Stevens has been hailed as a man in advance of his time, an analysis of his proposition shows why his views did not deserve to receive serious attention. While dealing in general terms with the assured results which must follow the successful introduction of steam locomotion, his nearest approach to a statement as to how this was to be brought about was: “It would be altogether unnecessary

John Stevens’
contribution

¹ *Niles*, III, Addenda, 5.

² Sinclair, ut supra, 8,

to go into a detailed description of the mode of adapting and applying the machinery of a steam engine to the purpose of propelling carriages placed on railways. It is sufficient to say, that I feel the fullest confidence in being able to convince an experienced engineer of the entire practicability of the plan."¹

Benjamin Dearborn of Massachusetts² in 1819 presented a petition to congress stating that he had invented a "mode of propelling carriages by steam, well calculated for the conveyance of the mail and any number of passengers," and praying that an experiment might be made to test its utility.³

In 1813 William Hedley and Timothy Hackworth succeeded in constructing the first locomotive which was run upon rails. George Stephenson, who was employed at a neighboring colliery, built a locomotive closely following that of Hedley, and within the next decade
Hedley and Hackworth Stephenson and others were busy with this problem; but results were unsatisfactory, as nothing was produced which would work as cheaply as horses, and interest was confined to a few investigators.⁴

EARLY RAILROAD LITERATURE

Popular attention was first attracted to the subject of railways by Thomas Gray of Nottingham, whose "Observations on a General Iron Rail-way" was first published in 1820. Gray deplored the perversity which had led investors to put so much capital into canals, and declared that there could be no comparison between horse and mechanical power.

¹ Stevens, Documents tending to show the superior advantages of railways and steam carriages over canal navigation (2 ed.), 15.

² "Whose long life has been devoted to mathematical and mechanical studies and inventions; and no one has been more successful in this line of usefulness." — Sullivan, Suggestions on the canal policy of Pa., 25. (1824.)

³ 15 cong. 2 sess., House Journal, 258.

⁴ Sinclair, *ut supra*, 10.

He developed the idea of Doctor Anderson that through the general introduction of the railway the value of farm produce would be enhanced. By his plan "Each farmer would only require carts or caravans for running on the rail-way, and by having a branch rail-way laid down to his own estate, one horse would draw several carts or caravans to the line of rail-way communicating with the town to which they are destined. Every market day steam-engines might ply along these lines and collect the farmers' caravans or carts in the morning, and in the evening the same engine might return and leave them at their respective branches . . . On arriving at the end of the rail-way branch, horses might then be employed to draw the caravans or carts off the rail-way carriage, and proceed with them into the market.¹ . . It would be found still more simple and less expensive to have two sets of wheels for each cart or caravan, one set for our present roads, and one set for the rail-way²: all public vehicles may be provided with two sets of wheels, in order to take advantage of rail-ways wherever they may be adopted."³

In 1824 the Highland Society of Scotland published a compilation of essays upon railways, edited by Robert Stevenson, whose summary essay was an important contribution to the world's knowledge of the subject.⁴ The same year George W. Smith of Philadelphia published anonymously several noteworthy pamphlets upon the comparative value of railways, roads, and canals.

The first standard work upon railroads was Nicholas Wood's *Practical Treatise on Rail-Roads*, published in 1825.

¹ This was Edgeworth's idea.

² The substitution of the extra wheels for the extra truck was a contribution of Gray.

³ Pp. 38-9 of 5th ed., 1825.

⁴ Highland Society, *Prize-Essays and Transactions*, VI, 1-146; Smith, in Wood, ix.

Wood, while a sponsor for railroads, reflected the popular doubt as to their immediate economic value in statements like the following:

"After the observations I have previously made, respecting the use of locomotive engines, and the principles of their construction, it will be scarcely necessary for me to say, that I deem them worthy of attention; and that I think they will ultimately be made generally useful, and be extended, on suitable lines of road, in preference to horses, in the conveyance of goods along rail-roads. I must, however, beg leave to state, that I am far from believing they are at present arrived at any way near to a state of perfection; on the contrary, I think them far from perfect: the most ridiculous ideas have been formed, and circulated, of their powers; and though I am of opinion, when made the subject of attention amongst engineers, they will advance in improvement like other machines, they must as yet be considered only in their infancy, and as not having reached beyond the trammels of prejudice. It is far from my wish to promulgate to the world that the ridiculous expectations, or rather professions, of the enthusiastic speculist will be reached, and that we shall see them traveling at the rate of 12, 16, 18, or 20 miles an hour; nothing could do more harm towards their adoption, or general improvement, than the promulgation of such nonsense.

"I recommend the use of them in proper situations, because, after a daily opportunity of witnessing their performance for nearly eleven years, I think the principle of their action is founded on good grounds: and that they will, ultimately, reach such a state of perfection, that, by facilitating the conveyance of goods at a rate of motion far beyond the power of horses or canals, they will be of infinite advantage to commerce."¹

In a second edition, which appeared in 1832, these remarks

¹ Pp. 290-1.

were omitted; but coming from one of the strongest advocates of the steam-operated railway, they serve to indicate the general skepticism of the time. An extreme illustration of this is found in the often quoted comments upon the "absurd and ridiculous" claims made for the steam locomotive, which appeared in the London Quarterly Review in 1825:

Current comment

"It is certainly some consolation to those who are to be whirled at the rate of eighteen or twenty miles an hour, by means of a high pressure engine, to be told that they are in no danger of being seasick while on shore; that they are not to be scalded to death nor drowned by the bursting of the boiler; and that they need not mind being shot by the scattered fragments, or dashed in pieces by the flying off, or the breaking of a wheel. But with all these assurances, we should expect the people of Woolwich to suffer themselves to be fired off upon one of the Congreve's *richochet* rockets, as trust themselves to the mercy of such a machine, going at such a rate."¹

It is not surprising, therefore, to find that an act passed by parliament in 1821, providing for the construction of the Stockton and Darlington railway, contemplated the exclusive use of horses for motive power. But George Stephenson was appointed engineer, and through his efforts an amendment to the act of incorporation was obtained which authorized the carrying of passengers and the operation of the road by steam engines.² This line, twenty-five miles long, was opened in 1825, but so unsatisfactory were Stephenson's locomotives that the directors seriously thought of substituting horses because of the lower cost of operation.³ As a result of this failure, even scientific opinion was turned

The Stockton and Darlington railway

¹ XXXI, 362.

² Farrer, ut supra, VI, 275.

³ Sinclair, ut supra, 12.

against the locomotive. When in 1829 two of the most eminent engineers in England were engaged to decide upon the best motive power for the Liverpool and Manchester railway, then nearly completed, they reported that the advantages of stationary and locomotive engines were nearly balanced, but that on the whole, considering expense, stationary power with rope traction was preferable.

The Rocket

But Stephenson, who was also engineer of this road, again vigorously opposed the adoption of the plan. His protestations finally led the directors to offer a prize of £500 for the most successful locomotive. The competition for the prize at Rainhill, in 1829, brought out five new engines, three of which demonstrated that steam locomotion was practicable. The successful locomotive was the "Rocket," upon which the fame of George Stephenson

Stephenson's service

rests.¹ With his victory at the Rainhill prize contest, and the successful opening of the Liverpool and Manchester, popular doubt was dispelled, and a reaction set in which soon developed into railway mania.

To Stephenson is undoubtedly due the credit for having been foremost in that little group of inventors in the North of England who made steam traction possible, and the far greater credit of having had the foresight to appreciate the future value of the locomotive engine when combined with the railway as an organic unit of transportation. Without doubt there has been a tendency to overlook the importance of the development of the railway. It is reasonable to believe that had Trevethick's locomotive been tried upon a suitable track, results might have been more promising.

The importance of the track

Even after the success of the locomotive had been demonstrated, much time and effort was spent in the vain attempt to devise a steam carriage which could be operated upon common roads.

¹ Sinclair, *ut supra*, 10-4.

The irregularities in the surface of the best roads, however, and their constant change in grade, required engines of greater power. With greater power, weight was increased, and it was finally demonstrated that until an engine of comparatively light weight could be devised the only hope for steam traction lay in the improvement of the roads.¹ Such improvement then being impossible upon the highways, the substitution of the railway was the only solution of the problem.

THE RAILROAD IN AMERICA

Although Evans and Stevens, in this country, had busied themselves with the subject of locomotive traction upon railways, their efforts were without direct result. Stevens in 1811 applied for a charter in New Jersey, and again in 1815. The second application was successful, and to Stevens was granted the first railroad charter in the United States.² This act authorized the construction of a railroad between Trenton and New Brunswick, but capital in support of the venture was not forthcoming. Turning to Philadelphia, Stevens submitted an address to the council of that city, but there was no response.³ In 1822 he applied for a charter for a railroad from Harrisburg to Pittsburgh, but the legislature of Pennsylvania granted him, instead, a charter for a line to connect Philadelphia with Columbia on the Susquehanna.⁴ No further action was taken, and the charter was repealed in 1826 to allow the state to undertake the work which had proved so unattractive to private capital.⁵

In America as in England the tramway came as the fore-

¹ *Quarterly Review*, XLIII, 381-3. (1828.)

² L. 1815, 2 sess., no. 68.

³ Ringwalt, *Development of transportation systems*, 67; McMaster, *United States*, V, 139.

⁴ L. 1823, no. 148.

⁵ Wilson, *Internal improvements of Pa.*, 9.

runner of the steam railroad. The earliest work of the kind in this country appears to have been constructed by Silas Whitney of Boston on Beacon Hill in 1807. Two years later Thomas Leiper built a tramway to connect his quarries on Crum creek, Delaware county, Pennsylvania, with tide-water on Ridley creek, a distance of about three-quarters of a mile. This was in constant use

Tramways in
America

until 1828. Other similar structures were laid down at Falling's Creek, Chesterfield county, Virginia, soon after 1810; at Bear Creek Furnace, Armstrong county, Pennsylvania, in 1818; and at Nashua, New Hampshire, in 1825.¹

A Boston editor early in 1822 recommended to the capitalists of his city the construction of an iron railway between Boston and Worcester. "It is well known," said he, "that Railways are in successful operation even in that country of canals, Great Britain, and in other European states; and their practicability, and the facility they afford to the transportation of heavy articles, have been tested by experiments in this city."² In 1823 a proposition was advanced for the construction of a railway near Charleston.³ The Quincy granite railway, three miles long, was built in 1826 to carry granite for the construction of the Bunker Hill monument from the quarries at Quincy to a landing on the Neponset river. Horses furnished the motive power, except at an incline where stationary engines were used. A part of this route is still used by the Old Colony railroad. A similar road was constructed at Mauch Chunk, Pennsylvania, in 1827 for the transportation of coal. This was a gravity road, with stationary power at the top of the grades. The Delaware and Hudson canal company, also in 1827, opened

¹ McMaster, III, 494; Ringwalt, 68-9; Engineers' Club of Phila., *Proceedings*, V, 418-20.

² *Columbian Sentinel*, April 27, 1822.

³ Report of the supt. of educ. of S. C., 1823: 8-9.

a line sixteen miles long between Carbondale and Honesdale to connect its canal with its coal mines.

Work was begun at Baltimore in 1828 upon the Baltimore and Ohio railroad, which was the first important railroad project undertaken in the United States. The following year a commission which had been appointed by the Massachusetts legislature in 1827 submitted an elaborate report recommending the construction of a railroad from Boston to a connection with the Erie canal and the Hudson river.¹ The possibility of building a railroad westward from Boston had been first officially considered in the message of the governor in 1825, as a substitute for the proposed canal to the Hudson,² but the message of the following year contained a recommendation in favor of the canal.³ The legislature, however, was not willing to commit itself to the undertaking, and the report of the commission dispelled whatever doubt there may have been as to the feasibility of a railroad. This report recommended the construction of a road with rails of granite faced with iron, which should rest upon parallel walls of masonry set below the frost line. The space between was to be graded so as to form a path for horses. A suggestion was advanced that the labor of the horses might be relieved by providing platforms on the cars on which the horses, after hauling the cars to the top of a grade, might ride and eat their provender while descending to a point where their work should be resumed.⁴ Reference was made to the success of locomotive engines in England, but horsepower was recommended on the ground that it would be cheaper under the conditions existing in Massachusetts.⁵

¹ Report on the practicability and expediency of a rail-road from Boston to the Hudson river, and from Boston to Providence. (1829.)

² Speech of Levi Lincoln, June 2, 1825: 10.

³ *Ibid.*, June 6, 1826: 16-8.

⁴ P. 7.

⁵ Pp. 24-6.

After considering the matter with great deliberation, the legislature of that year refused to act. The next legislature reviewed the whole subject, and came to no decision. But while the state was unwilling to undertake an enterprise involving so much risk, it offered every inducement to those who would test the new mode of transportation under local conditions. Consequently, in 1829 a charter was granted for the construction of a railroad from Boston to Worcester,¹ and in 1830, at the same session at which the legislature had refused a second time to undertake the work, charters were granted for three railroads to run out of Boston, one to Franklin county and Vermont, one to the New York state line, and a third to Providence.² None of the corporations thus provided for were organized. At the second legislative session of 1830, a charter was granted for the Boston and Lowell.³ The Boston and Providence and the Boston and Worcester received their charters the following year,⁴ and in 1833 the Western railroad was chartered to build a line from Worcester to a connection with Albany.⁵

With the exception of the Baltimore and Ohio and the Boston and Worcester, the lines begun at this early period were designed for local needs, and most of them were projected to supplement navigable waterways. Thus the Mohawk and Hudson served to connect Albany with the Erie canal at

Railroads auxiliary to canals Schenectady, over a route which it was impossible for a canal to follow; the South Carolina railroad made Charleston the outlet of the trade originating on the Savannah river; the New Castle and Frenchtown united the waters of Chesapeake and Delaware bays; and the Camden and Amboy brought the Delaware

¹ Speech of Levi Lincoln, 1829, c. 26.

² L. 1830, c. 93-5; Senate bill and report respecting the Boston and Lowell, 8. (1837.)

³ L. 1830, c. 4.

⁴ L. 1831, c. 56, 72.

⁵ L. 1833, c. 116; Bliss, Hist. memoir of the Western railroad, 19.

river in touch with New York harbor. Pennsylvania built railroads as part of the state works between Philadelphia and Columbia, and Holidaysburg and Johnstown, where the construction of a canal was impossible. The first railroad in Western New York, the Ithaca and Owego, was built to connect the New York system of canals with the waterways tributary to the Susquehanna. All of these lines were constructed before 1835. Only in exceptional cases was the railroad designed to compete on equal terms with a canal, and it was not until the success of the Boston and Lowell in diverting traffic from the Middlesex canal, that the importance of the new mode of transportation became fully understood.

That Americans were thoroughly alive to the importance of developments abroad appears from frequent mention of English experience, as well as from the fact that commissioners were deputed to study English improvements. Among the witnesses of the great contest of locomotives on the Liverpool and Manchester were two American engineers. One represented the South Carolina railroad, and the other soon afterwards entered the service of the Delaware and Hudson canal company. Orders were placed almost immediately by this company for three English locomotives for use upon the Carbondale and Honesdale railway. On August 8, 1829, the first locomotive in America was run on this line, but the track was too light to support the weight, and the trial was a failure for that reason only.¹ The second road to use a locomotive was the South Carolina, or Charleston and Hamburg, which in November, 1830, began running an engine made at West Point, New York. Not only was this company the first to use an American made locomotive, but it was also the first definitely to replace horses with locomotives.²

¹ Brown, Hist. of the first locomotives in Amer., 75-6, 83-92.

² Ibid., 147.

This decision involved no small risk, for it was long before the locomotive became an assured success. There were few of the early lines in this country which did not have an inclined plane. The South Carolina road had one for some years after locomotives were adopted. On the Mohawk and Hudson there was an inclined plane at Albany and another at Schenectady. At Parr's Ridge, between the valleys of the Potomac and the Patapsco, the Baltimore and Ohio was equipped with a series of four such planes. Those on the Portage road in Pennsylvania were regarded as among the engineering wonders of the age.¹ Moreover, it is necessary to remember that in locating a railroad in that period, the engineer was forced to adjust his plans to financial necessity, until the growth of through traffic made economy of operation a more important factor than low first cost of construction. Sharp curves, steep grades, and winding courses were characteristic of all early American railroads. To meet topographical difficulties, American mechanics early adapted their locomotives, and rolling stock as well, to conditions which were unknown in England. Equalizing beams for locomotives enabled American trains to keep upon uneven tracks where an English train would have been ditched, and four-wheeled swivel or bogie trucks have overcome the menace of sharp turns.

At best, the early locomotives were feeble affairs. Upon the Mohawk and Hudson, according to a news letter written in 1831, it was found necessary during the winter to withdraw the locomotive engines and return to horses.² When in 1834 a steam locomotive was placed in service upon the Philadelphia and Columbia railroad, the managers had so little confidence in its power that they sent a horse car with it, and had relays in readiness to go to its relief in case of a

¹ Stevenson, Sketch of the civil engineering of North Amer., 185-6.

² *Silliman's Journal*, XXI, 385.

breakdown. That their precautions were warranted is indicated by the fact that the passengers were at times called upon to get out and start the train with a push.¹ An early advertisement of this road reads: "The locomotive engine built by M. W. Baldwin of this city, will depart daily when the weather is fair, with a train of passengers' cars. On rainy days horses will be attached." It is not surprising, then, that upon all of the early American railways, horses were retained for some time after the steam locomotive had

Experiments in
motive power

been introduced, and that before the final adoption of steam, other forms of power were tested. Both the Charleston and Hamburg and the Baltimore and Ohio experimented with cars propelled by sails, and with horse-power locomotives equipped with tread-mills, by means of which the motion of the horses in the car was communicated to the wheels.² Upon the Baltimore and Susquehanna railroad, two cars were joined by shafts of timber, and the horses, hitched between, were kept from falling by a broad belt of leather, which was passed under their bodies and attached to the shafts.³

But the horses gradually gave way, and with their displacement by steam engines came an end to the long dispute over the relative merits of canals and railways. In 1825 the "Pennsylvania Society for the Promotion of Internal Improvements in the Commonwealth," organized in 1824, took up the cause of railroads under the active leadership of Mathew Carey. In 1825 this society sent William Strickland to England, to investigate in detail every phase of the question. From his reports, which were of great service in shaping the popular mind in favor of railroads, a significant sentence, under date of January 16, 1825, may be quoted: "In fact the introduction of the

Strickland's
mission and
report

¹ McClure, Old time notes of Pa., I, 123.

² Brown, 123-5; *State Rights and Free Trade Almanac*. (1832.)

³ McMaster, VI, 90.

locomotive has greatly changed the relative value of railways and canals: and, where a communication is to be made between places of commercial or manufacturing character, which maintain a constant intercourse, and where rapidity of transit becomes important, it cannot be doubted that railways will receive a preference in consequent of this very powerful auxiliary."¹ This was the form in which the statement was finally approved by the society. It became known some years later that Strickland, after witnessing the performance of some of Stephenson's locomotives, became so enthusiastic that in his original report he made the prophecy that railways were destined to supersede canals. But the committee, fearful that Strickland's opinion might be given an official interpretation and thus embarrass the society, rewrote the prophetic paragraphs, and prevented Strickland from declaring what was soon to become an established fact.²

¹ Reports on canals, railways, roads and other subjects, 31.

² Kane, Amer. Phil. Soc., *Proceedings*, 1854: VI, 28-32.

CHAPTER IV

THE EFFECT OF EARLY EXPERIMENTS ON POPULAR AND INVESTMENT OPINION

WE have abundant testimony to show how slow was the popular mind to come to an intelligent appreciation of the nature and possibilities of the railroad. To the early legislator the railroad was an improved common road, to be ranked with the macadamized turnpike. The first railroad charters were patterned directly after turnpike charters, and in some instances this fact is evidenced by the charter name of the corporations. Kentucky in 1828 passed an act incorporating the "Lexington and Frankfort Turnpike or Railroad company";¹ and the following year chartered the "Lexington Railroad or Turnpike company";² and Maryland³ and Delaware,⁴ about the same time, authorized the New Castle and Frenchtown Turnpike company to build a railroad, and to change its corporate name accordingly. Massachusetts in 1832 chartered the Hoosac Rail or Macadamized Road company.⁵ That this idea was shared by at least a portion of the press is evident from a suggestion of a Boston newspaper that the proposed railroad to the Hudson might be constructed in sections upon the basis of small annual appropriations, with the idea of its ultimate extension to Troy if it should prove a success. "And so," the article concludes, "in a few years we might have Railways on all our

¹ L. 1827-8, c. 80.

² L. 1828-9, c. 159.

³ L. 1827-8, c. 207.

⁴ L. 1829, c. 158.

⁵ L. 1832, c. 49.

great roads.”¹ As late as 1840 the idea was still present; John Sherman wrote of the Sandusky and Mansfield: “No one then thought of the movement by railroad over vast distances, of grain, stock, and merchandise, but regarded the innovation as a substitute for the old wagon trains to the lakes.”²

It is not surprising, therefore, that in almost every instance railroad construction costs were in excess of estimates, and that maintenance also was more expensive. In this connection it is to be remembered that the railroads were required to handle business in a different way from what was originally intended; that they were able to accommodate a much larger volume of traffic than had been originally thought possible; and that they created a large amount of new business wherever they were built. Without any question, it was this last named fact which made it possible for the early railroads to survive the wastes of the experimental period.

From the solid granite rails of the Quincy railway, a distant line of descent can be traced to the standard track of to-day. In the construction of the Baltimore and Ohio railroad from Baltimore to the Point of Rocks, every known mode of track construction was tested. “Thus,” says Bowen, “the granite and iron rail; the wood and iron on stone blocks; the wood and iron on stone sleepers, supported by broken stones; the same supported by longitudinal ground-sills, in place of broken stones; the log rails, formed of trunks of trees worked to a level surface on one side to receive the iron, and supported by wooden sleepers; and the wrought iron rails of the English make — all had been tried, and as early as 1832 constituted different sections of the road.”³ Other

Estimate of
cost too low

Waste of cap-
ital in experi-
ments

¹ *New England Palladium*, February 3, 1826.

² Sherman, *Recollections*, I, 81.

³ Bowen, *Rambles in the path of the steam horse*, 64.

companies profited by these experiments on the Baltimore and Ohio, but no one railroad was the prototype of any other. Unlike English engineers, who slavishly followed the models of Stephenson, those in charge of the construction of American railroads strove for originality, with the result that improvement was so rapid as to attract to this country European engineers desirous of obtaining suggestions to aid them in their work.¹

The flat iron bar resting upon longitudinal timbers was at first generally preferred, as its elasticity prevented the excessive jarring which inevitably accompanied the use of iron-faced granite construction, and its original cost was about half that of any other form. The Boston and Lowell railroad constructed its track so solidly that it was believed to be practically indestructible. Granite cross ties were used throughout as supports for iron edge-rails, and this structure was so unyielding that locomotives and rolling stock were continually breaking down. Within a few years, almost the whole of this "indestructible" road had been replaced by a track of more elastic construction.² A similar experience was met with upon those sections of the Baltimore and Ohio which had been laid with iron rails upon sills of granite. Engineers whose experience had been limited to work upon the Cumberland road were employed to locate the Baltimore and Ohio, and they appear to have overlooked the fact that they no longer had the resources of the national treasury to draw upon. Not only did they build elaborate stone structures over streams where temporary trestles of piling would have sufficed, but they compiled estimates for granite construction upon the basis of experience in a sand stone country.³ In the attempt to reduce first costs

Changes in form
of track

¹ Latrobe, Baltimore and Ohio railroad, 14.

² Chandler, Hist. note on early Amer. railways, Wis. Acad. of Sci., Arts, and Letters, *Transactions*, XII, 317-24.

³ Latrobe, 6-7, 10.

of construction, engineers of many of the early railroads wasted millions of dollars upon experimental forms of roadway. Thus the original plans of the New York and Erie railroad provided for two hundred miles of track upon piles, with the idea of obviating the necessity of grading. Upon this scheme a million dollars was lost.¹ The South Carolina railroad was laid for miles upon a temporary structure of piles, and a large part of the Syracuse and Utica railroad was also originally constructed in this manner.²

Another source of loss to early railroads was the absence of a standard gauge. The wheel base of the early English road carts was five feet in width by outside measurement, and the first tramways were built to conform to these carts. As the combined width of the first rails used happened to measure three and a half inches, the space between the rails, or the gauge, was four feet eight and a half inches. This gauge was adopted by Stephenson as the most economical in construction both of locomotive and track; and notwithstanding the plea of other able engineers for a broader gauge, the one favored by Stephenson ultimately became the standard in England. So long as English locomotives were exclusively used in the United States, the gauge of American tracks was the English standard, but American engineers began to experiment with gauges as soon as they built their own engines. The English standard was originally adopted throughout New England and the Middle West, and a five-foot gauge generally prevailed in the South. In the Middle States there was a confusion of gauges; Pennsylvania and Ohio had seven different widths of track, six of which ranged with fractional variations between standard gauge and four feet ten inches. Many of our most promi-

Differences in
gauge

¹ Mott, *Between the ocean and the lakes*, 48-9, 323-5.

² *Ibid.*, 323; Annual report of the Louisville, Cincinnati, and Charleston railroad, 1838.

nent lines were originally constructed with other than a standard track. The Erie and the Albany and Susquehanna had a gauge of six feet, as did the Delaware, Lackawanna, and Western. The Chicago and North Western also adopted the six-foot gauge, but after the road had been constructed as far as Elgin, the track was relaid at standard width. The Missouri Pacific had a gauge of five feet six inches; the Chesapeake and Ohio, five feet; the Cincinnati, Hamilton, and Dayton, four feet ten inches; the Lake Shore and Michigan Southern, four feet nine and one-half inches; and the Pennsylvania, four feet nine inches.¹ The growth of through traffic ultimately compelled a standardization of gauge throughout the country at a great cost.

In the controversy about the relative costs and merits of canals and railroads, the opponents of the railroad made much of the argument that to compete with a canal a railroad required a double track so as to accommodate without interruption cars proceeding in opposite directions. When the first American railroads were built, it was found possible to operate with a single track supplemented by sidings at convenient distances. But in the absence of any system of signals, whenever a train failed to appear upon time, there was no means of finding out its whereabouts. Upon the Boston and Worcester railroad, trains left the terminals at the same time and met at South Framingham; and to insure against accidents or excessive delay in case of a breakdown, a relay of horses was maintained at intervals of five miles along the route.² The Philadelphia and Columbia railroad was also originally constructed with a single track. As this was a public highway on which any one might place a car, no schedule of operation was practicable. To prevent disputes between teamsters the officials set up posts half-way between termi-

The question
of signals and
double track

¹ Vernon, American railroad manual, 1873, passim.

² Currier, Reminiscences, 17.

nals, and made a rule that when two cars met, the one that had passed the centre post should have the right of way. The route was very crooked, and in many places it was impossible to see far ahead. So when a driver left a turnout he would first proceed at a slow pace because of the possibility of being compelled to return, but as he approached the centre post he could drive at top speed in order to be able to force back any cars which might be approaching from the opposite direction. Accidents were frequent, and disputes between drivers were of such constant occurrence that it was found necessary to lay a second track.¹

It was not until the construction of this additional track that locomotives could be introduced upon the road. But the state at first furnished power only upon the inclined planes. The shipper packed his goods into his own cars, and then engaged an engineer to haul them. The delays thus caused resulted in the diversion of a large amount of traffic to rival routes, and the loss of much perishable freight.² In 1835 the state began to furnish the whole of the motive power, but the cars were still owned by individuals or companies.³ It was not the intention of early legislators that railroad companies should have any preferential or exclusive use of the means of transportation upon their tracks. With the exception of the Baltimore and Ohio, few railroad companies of this period were granted charters which did not expressly provide that the road might be used by any person who would comply with necessary rules as to form of wheels, style of cars, and weight of loads. The idea was distinctly in mind that the railroad was to be operated precisely like a turnpike, with gates at intervals along the route for the collection of tolls. But before many of these roads were constructed,

Private owner-
ship of cars

¹ Roberts, First railroad over the Alleghany mountain, 72.

² *Amer. Railroad Jour.*, V, 68.

³ *Ibid.*, V, 96.

the necessity for operation by the railroad company itself had become apparent, and few instances are recorded where trouble was experienced with individual owners of cars. Upon the Ithaca and Owego railroad owners of private cars were compelled to give up their rights under the charter ¹ by the refusal of the company to haul any but its own cars over the inclined planes.²

ELEMENTS OF OPPOSITION

From its first suggestion, the construction of practically every railroad was vigorously opposed. Existing transportation agencies were arrayed against threatening competition in its new form, and promoters of rival railroad projects blocked each others' movements at every opportunity. Even in cases where two lines were not prospective competitors for traffic, they met in the struggle for financial support. The Boston and Lowell project was frowned upon by the promoters of the through line from Boston to the Hudson, who opposed all local lines as tending to divert the limited supply of available investment capital. Again, when the fact became evident that railroads might compete with canals for heavy traffic, it aroused mingled feelings of surprise and resentment. New York had incurred a heavy debt in the construction of the Erie canal, and mass meetings throughout the state demanded that railroad competition should not be allowed to affect the receipts from the canal. The Mohawk and Hudson had already been authorized to haul freight at rates not to exceed the combined tolls and transportation charges upon the canal.³ In granting the charter of the Utica and Schenectady in 1833, the legislature in response to popular clamor made a complete change of front,

Rival transportation companies

¹ L. 1828, c. 21.

² Gerstner, *Die innern Communicationen der Vereinigten Staaten*, I, 194-7.

³ L. 1826, c. 253.

and prohibited the carrying of any property except the baggage of passengers.¹ The charter of the Attica and Buffalo, which was granted in 1836, authorized the handling of freight traffic,² and the powers of this company were conferred upon the Lewiston, the Syracuse and Utica, the Auburn and Rochester, and the Schenectady and Troy, the same year. During that part of the year, however, in which the canal was in operation, the Syracuse and Utica was required to pay into the canal fund the amount which the state would have received in tolls if the freight had passed through the canal.³ It was not until 1844 that the Utica and Schenectady was permitted to carry freight, and then only during the suspension of navigation and upon the payment of canal tolls. By the act which conferred this privilege, moreover, the requirement of canal tolls was imposed upon all through traffic upon the Syracuse and Utica, the Auburn and Syracuse, the Auburn and Rochester, the Tonawanda, and the Attica and Buffalo throughout the year.⁴ In 1847 the Utica and Schenectady was authorized to carry freight at all seasons of the year, but the provisions of the act were also extended so as to require canal tolls from the Schenectady and Troy, and the Albany and Schenectady (Mohawk and Hudson), upon all through freight.⁵ The general railroad incorporation act of 1848 required canal tolls from railroads parallel to canals and within thirty miles, and this was renewed in the act of 1850; but in 1851 with the change in the popular attitude toward railroads, all restrictions of this character were removed.⁶

In Pennsylvania, too, where there were many state canals, the people were at first strongly prejudiced against all railroad corporations. It was due partly to this sentiment and partly to the activities of agents of the Baltimore and Ohio

¹ L. 1833, c. 294.

² L. 1836, c. 242.

³ L. 1836, c. 292.

⁴ L. 1844, c. 335.

⁵ L. 1847, c. 270.

⁶ L. 1851, c. 497.

that a clause was inserted in the charter of the Pennsylvania railroad company which required the payment of a tonnage tax of five mills per mile between March 10 and December of each year.¹ While this tax was reduced to three

Canals in Pennsylvania mills, and subsequently removed upon coal and lumber traffic, competition with the Baltimore and Ohio for through business was seriously handicapped until 1861, when a special act was obtained for its removal.²

Turnpikes and bridge companies and the proprietors of stage lines were everywhere found among the most active opponents of railroads.³ When the Utica and Schenectady was chartered in 1833, the company was required to tender \$22.50 for each share of the stock of the Mohawk turnpike company, which existed under a charter granted in 1800.⁴

Turnpike and bridge companies All over the country stage lines went out of business most reluctantly with the coming of railroad competition, for they represented a large investment of capital and employed many men. The promoters of the Boston and Worcester railroad found among their chief opponents the owners of stage lines and the people dependent upon them. At the beginning of the first winter after the opening of the road, they decided to suspend operations rather than remove the snow, but this gave the stage owners so effective an argument that train service was soon restored.⁵

The farmers, also, were hostile. They feared that with the introduction of railroads the market for horses and hay and grain would be ruined, and that the locomotives would cause a rise in the rates of insurance upon their buildings.⁶ Tavern keepers deriving their trade from stage and wagon travel presented every possible obstacle to the construction

¹ L. 1846, no. 262.

² McClure, *Old time notes of Pa.*, I, 136-42; L. 1861, no. 100.

³ McClure, I, 123-4.

⁵ Currier, 15-6.

⁴ L. 1833, c. 294.

⁶ Hill, *ut supra*, 543.

of the railroads; and in Pennsylvania, where the Conestoga wagon trade was heavy, this opposition was for a time effective.¹ In Connecticut, we are told, an eloquent divine went about lecturing in opposition to railroads, declaring that their introduction would necessitate the building of a great many insane asylums, as people would be driven mad with terror at the sight of locomotives rushing across the country with nothing to draw them.² And the townspeople of Newington in the same state, having learned that a line of railroad was projected through their neighborhood, are said to have presented to the directors a remonstrance which represented that they were a peaceable, orderly people, and begged that their quiet might not be interrupted by steam cars and the influx of strangers.³

Capitalists were as a rule averse to putting money into early railroad ventures, and they met the plans of promoters not only with ridicule, but with outright opposition. Such an attitude naturally served to deter small investors, and as it was reflected in the conservative press of the day, its influence was widespread. Many editors were accustomed to single out railroad matters for the subjects of their most scornful attention. The Boston Courier on June 27, 1827, greeted in these words the announcement of the commissioners that a railroad might be built from Boston to the Hudson:

"Alcibiades, or some other great man of antiquity, it is said, cut off his dog's tail that *quidnuncs* might not become extinct for want of excitement. Some such notion, we doubt not, moved one or two of our natural and experimental philosophers to get up the project of a railroad from Boston to Albany — a project which everyone knows who knows

¹ McClure, I, 133-4.

² Lamb, Glimpses of the railroad in history, *Mag. of Amer. Hist.*, XXV, 442.

³ Kennedy, American railroad, *Mag. of West. Hist.*, IX, 45-6.

the simplest rule of arithmetic to be impracticable, but at an expense little less than the market value of the whole territory of Massachusetts; and which, if practicable, every person of common sense knows would be as useless as a railroad from Boston to the moon."¹

In general there was a popular feeling of opposition arising from doubt both as to the mechanical and financial prospects of railroads. Those who were most active in their promotion were looked upon as victims of a new form of dementia. Edward Everett Hale tells us that the friends of his father, Nathan Hale, left his house with expressions of pity because he had declared his belief in the practicability of a railroad from Boston to Worcester; and he points out that enthusiastic as were the promoters of this road over the success of their project, they did not venture to mention the possibility of using locomotive power until their second annual report.²

Elements of
popular doubt

THE RESULTS OF PRACTICAL DEMONSTRATION

But repeated practical demonstrations firmly persuaded the popular mind that the railroad presented a solution of the transportation problem for those whose interest lay far removed from the coast and from canal and river improvements. As soon as this conclusion became general, the demand for railroads overcame all opposition that was brought to bear upon charter-making and appropriating bodies. The regularity of large dividends declared on shares of the New England roads, the increasing of traffic beyond all estimates, the liberality of inducements offered by committees desiring an outlet for products and an inlet for manufactured goods, and the encouragements and security offered in charter grants, gave to capital the inducement and assurance needed to focus investment upon this form of undertaking.

¹ Quoted by Hill, *ut supra*, 542.

² Hale, *Memories of a hundred years*, I, 309-10.

No one influence was responsible, however, for the mania for investment in railroads which soon arose. There had been a long period of uninterrupted peace, and a great advancement in mechanical invention. Between 1830 and 1837 the nominal banking capital of the United States increased from \$110,000,000 to \$225,000,000. An incident contributing to speculation was the removal of the national deposits from the United States bank, and the distribution of some \$29,000,000 among the several state institutions, making this fund available for local uses.¹ The immediate result of the expansion of bank capital and the increased liberality of bank charters was a multiplication of paper notes, with the inevitable increase in prices and apparent profits. But the more potent force in distributing the financial equilibrium was the speculative profits derived from land sales, townsite promotions, and margins on shares. This brought about a state of affairs in which "men acted as if a short and secure road to wealth had been discovered on which all might travel, and he who went the fastest would be the first to reach the desired end."² Some idea of the popular point of view regarding profits may be learned from Gerstner, who, writing in 1839, after the panic had brought about a more conservative attitude, observed that in Louisiana a person, "speculating with prudence" might obtain a return of fifteen or twenty per cent.³

In this period state and local debts greatly increased, and the funds obtained by public borrowing were added to the stream which led to the maelstrom of ruin reached in the panic of 1837. Basing their hopes upon the unquestioned natural wealth of the country, European investors gladly contributed

¹ Curtis, Debts of the states, *North. Amer. Rev.*, LVIII, 113. (1844.)

² *Ibid.*, 114.

³ Gerstner, Internal improvements in the U. S., *Jour. of the Franklin Institute*, XXVI, 365.

to enterprises, the returns from which were doubtful, or at best remotely prospective. This movement had only begun when the United States reversed its policy toward the construction of public improvements, and thus threw the burden upon the individual states. Under stimulus of this legacy of duty several states entered upon the direct construction of railroads, and most of the others subsidized the private corporations which were formed to undertake the work. With the distribution of the surplus revenue from the national treasury in 1837 added to the internal improvement funds derived from a percentage upon the sales of public lands, the states were adequately equipped to supply their actual needs, but not those which they were led by popular enthusiasm to assume.

Fanciful as were the schemes of some of these states, they could not compare with the glowing visions of railroad stockholders, whose optimism can only be characterized as frenzied. Stock which a short time before could not be sold at any price was now eagerly sought. When subscription books were opened, it was no uncommon thing to have the stock over-subscribed several times. The experience of the Baltimore and Ohio was typical. "Everybody wanted stock," we are told. "The number of shares subscribed were to be apportioned if the limit of the capital should be exceeded; and every one set about obtaining proxies. Parents subscribed in the names of their children, and paid the dollar on each share that the rules prescribed. Before a survey had been made — before common sense had been consulted, even, the possession of stock in any quantity was regarded as a provision for old age; and great was the scramble to obtain it. . . . The directors, availing themselves of the public feeling, gratified their subscribers by permitting them to double their stock."¹

¹ Latrobe, 6-7.

The reports of foreign visitors give additional evidence as to the excitement of the popular mind in this period. "It seldom happens," wrote an English traveller, "that a company cannot be formed for want of subscribers. I found that in most cases, shares were taken in a shorter period than we in Europe take to consider or to sign our names. This does not exclusively apply to railroads, but also to banks, canals, and all possible undertakings. Money is generally so abundant, that most proposals are listened to with a view to make a profit."¹ And Chevalier, writing in 1835, said: "Everybody is speculating, and everything has become an object of speculation. The most daring enterprises find encouragement; all projects find subscribers. . . . The principal objects of speculation are those subjects which chiefly occupy the calculating minds of the Americans, that is to say, cotton, land, city and town lots, banks, railroads. . . . Speculations in railroads have hardly been less wild than those in land. The American has a perfect passion for railroads."²

Under stimulus of popular enthusiasm, railroad construction proceeded at a rapid rate. Beginning with a few lines radiating from shipping cities, and short local connections between interior points, a vast net of railroads rapidly spread over the country. The lines running from Boston to Lowell, Worcester, and Providence were all opened within the year 1835. The Nashua and Lowell was completed in 1838; the Western was opened to Albany in 1842; and the New York, Providence, and Boston had extended as far west as Stonington by 1837. In 1839 New Haven was connected with Hartford. Following the completion of the Mohawk and Hudson between Albany and Schenectady in 1831 came the Schenectady and Saratoga a year later, and the Rens-

Rapid construction

¹ Arfwedson, *The U. S. and Canada in 1832*, 3, and 4: II, 262.

² Chevalier, *Society, manners and politics in the U. S.*, 305-7.

selaer and Saratoga in 1835. In Delaware, the New Castle and Frenchtown was in operation in 1832. **Lines constructed within the first decade** By 1834 when Pennsylvania's state works were opened to Pittsburgh, the Baltimore and Ohio had reached Harper's Ferry. The Washington Branch of the Baltimore and Ohio was completed in 1835, and three years later, the Philadelphia, Wilmington, and Baltimore was opened. With the completion of the Camden and Amboy in 1839, a through line was established between New York and Washington. In the South the Charleston and Hamburg was in operation as early as 1833; and at that date its one hundred and thirty-six miles made it the longest railroad in the world. Georgia was late in starting, but the line from Tusculumbia to Decatur about the Muscle Shoals of the Tennessee river in Alabama was completed in 1833. Louisiana had one short line from New Orleans to Lake Ponchartrain as early as 1831, and the Lexington and Frankfort, the first railroad in Kentucky, was finished in 1835.

Railroad construction was not checked by the depression following the panic of 1837. According to one authority, the crisis was really of advantage to railroads because it **Construction during the depression of 1837** effectually put an end to the building of canals.¹ Figures of construction supplied by Poor and the Tenth Census reports generally agree in few particulars, but they alike record a steady increase in railroad mileage until 1842. By 1835 over one thousand miles of road were completed. During the next five years, nearly two thousand miles of road were added. The year 1841 was one in which construction exceeded that of any year prior to 1849, over seven hundred miles being built ready for use.

Construction during the period from 1840 to 1850 was

¹ Hadley, Railroad transportation, 33. But see Burton, Financial crises, 286.

heaviest in New England, but everywhere growth continued with only temporary and local interruptions. Local lines rapidly multiplied, and connecting, began to form through routes. By 1850 a second period of railroad construction was ushered in, and lines reaching far into the interior were boldly undertaken. Before that date, rail communication with the Lake country was possible only over the route from Albany to Buffalo; and a single line existed between the Ohio and the Lakes. In 1849 the Michigan Central reached Lake Michigan, and opened a lake and rail route to Chicago. In 1851 Boston obtained an independent entrance to the West through Ogdensburg, and the same year saw the opening of the New York and Erie to Dunkirk. With the building of the Cleveland and Toledo in 1853, through rail communication was first opened to Chicago. The Baltimore and Ohio reached Wheeling in 1853, and Parkersburg three years later. In 1854 the Pennsylvania railroad was completed to Pittsburgh, and the Chicago and Rock Island reached the Mississippi. The next year the Galena and Chicago Union railroad was opened to the Mississippi; and the Memphis and Charleston was completed through to that stream in 1857. By 1858 the Hannibal and St. Joseph had reached the Missouri river, and a year later the Mobile and Ohio and the Louisville and Nashville were opened. At the outbreak of the Civil war construction necessarily fell off, but within a single decade mileage had increased from nine thousand to thirty thousand; and the greatest gains were not in the thickly settled portions of the Atlantic coast, but in the South and West, where a wealth of undeveloped resources lured settler and promoter alike.

CHAPTER V

THE ECONOMIC BASIS OF TRANSPORTATION DEVELOPMENT

A HUNDRED years ago the only railroad known was the tramway. Twenty-five years later the steam locomotive existed as an object of speculative interest, but it had no place in the world's industrial system. The second quarter of the century was given over to experiments, and to the development of practical ideas of construction and management; yet during this brief experimental period about eighteen thousand miles

**Capital de-
voted to trans-
portation en-
terprise** of railroad were built, and over \$1,500,000,000 of capital expended. More than nine thousand miles of this development took place within the United States, — a new country, with little capital available.

It is at first a matter of surprise that such large capital should have been devoted to a new undertaking, and more especially that a large proportion of the expenditure should have been in a country slightly developed and little known. Some writers have regarded it as a period given over to reckless adventure, which is said to have brought with it wholesale destruction of capital and national disaster. But we must not forget that this was also a time of great material progress, and that few of these early railroads were unsuccessful from the point of view of national wealth. In England such enterprises as the Liverpool and Manchester, the London and Southampton were got under way. In America the Western, the Boston and Providence, the Old Colony, and the Boston and Lowell of Massachusetts; the Hartford and New Haven of Connecticut; the Philadelphia and Columbia and the Philadelphia and Trenton of Penn-

sylvania; the Camden and Amboy of New Jersey; the Baltimore and Ohio and the Baltimore and Susquehanna of Maryland were a few among the many successful projects launched before 1850. Taking the entire list of roads built during this early period, it would be difficult to find even a local tramline which has not become a permanent part of some splendid system of transportation. In England, Germany, France, Belgium, and in the United States these early railroads were, and are to-day, among the most valuable and productive properties in the whole economic system. Furthermore, not a few of these early roads were regarded as conservative investments, and subsequent experience has approved the judgment of the men of that day who had sufficient capital fully to equip the enterprises. Within a century it is probable that the people of the United States had invested no less than twelve billion dollars in the improvement of country roads and turnpikes, one billion dollars in river and harbor and canal improvements, state and national, and twelve billion dollars in the construction and equipment of tramlines and railroads, — not less than twenty-five billion dollars of capital found employment in inland transportation enterprise.

The principle underlying investment is a judgment of certainty of return. To attract the investor to old and well established enterprise, there must be *assurance of income* on capital expenditure. To attract the investor to new and untried fields, there must be an *assurance of increased profits*, — something above the current rate. Something in the nature of a "bonus" must be held out to cause thoughtful men to turn away from old and well-known lines of investment. What was there to give this assurance? What was the situation which offered profits in transportation development?

A vast wilderness with only a fringe of civilization, a continent almost unexplored, was the America of 1790. The

The economic
basis of the
railroad

frontiersman was still to be found in the small clearings of Maine, New Hampshire, and Vermont. Fully two-thirds of New York and Pennsylvania was yet unclaimed,—a common hunting ground. In this situation was found the extraordinary inducement, the “bonus” held out to investors in any schemes of transportation which would make the inland resources available. Here were whole empires of valuable timber and agricultural lands, rich deposits of iron, coal, and other minerals—all materials of national wealth—waiting, a prize to him who might claim them as a reward for enterprise. The cost of transportation equipment has been enormous, yet the inducement has been at all times sufficient to attract the investor.

The financial inducement to transportation improvement was of two kinds: the saving which it would make within the territory already developed; and the interior resources which might be reclaimed beyond the reach of the system supplanted.¹ By way of illustration of the relative advantages of the various kinds of road equipment, let us take a town as a centre. Assuming all the land round about equally adapted to yielding a crop of oats, which might be marketed at ten dollars an acre on delivery at this trade centre: Over an ordinary horse path or trail a horse may carry about two hundred pounds; on a cart, over a good dirt road, the same horse may draw one thousand pounds; on a turnpike of macadam bed, about two thousand pounds. From this statement of the case, the relative advantage to the producer of the better road is apparent. If a pack horse could move the product of two acres a mile a day, at a cost of two dollars, then the net return would be nine dollars from each acre one mile from the trade centre, eight dollars from each acre two

¹ See “Are we building too many railroads?” *Amer. Railroad Jour.*, XXV, 305-6, 395-7, 410-11. (1852.)

miles distant, etc., until the ten-mile limit had been reached, when the cost of transportation would consume the entire selling price of the product, and render production an economic impossibility. In fact, cultivation would stop before this point was reached, owing to the cost of making the crop. Under exactly the same conditions of production, above assumed, it would cost only one-fifth as much to get to market in a cart over a dirt road. The result would be that over one million dollars annually would be saved to this small community in decreased cost of transportation within a radius of ten miles. The capital cost of the necessary equipment would not be more than six hundred thousand dollars. Assuming that the land were all improved and awaiting better roads, about one hundred and seventy per cent would be the annual return to the community on the investment. Besides this saving the area of production would be carried from twenty to forty miles farther into the interior. From twenty to forty miles of tributary territory with all its productive resources would be reclaimed, and the income over cost of production within the marginal circle would be an additional gain. But under our assumption, oats being the only crop, when the fifty mile limit had been reached by the dirt road, then all the territory outside this limit would be without a market. With each kind of crop, the same principle would apply, limits of practical activity being determined by cost of production and market price. The advantage to be gained through better transportation facilities not only explains the early appropriations, but the early acts also show that the inducement was clearly perceived; this fact being set forth in the preambles of many of the laws appropriating money for local improvements.

Convert the common wagon road into a macadamized road and the cost of transportation would again be reduced about one-half. On the assumption above, over sixteen million dollars per annum would be saved to the community

within a radius of fifty miles, at an added capital cost of about sixty-four million dollars; that is, some twenty-five per cent could be realized by the community on the investment within the area previously equipped with wagon roads, while the radius of profitable production would again be extended.

Advantage of turnpike construction All lands within from sixty to eighty miles would be brought within the range of the central market. True, no such uniformly fertile and uniformly developed community exists, and as a result turnpikes were built only as trunk lines through the best producing land and on the most travelled routes. But the principle is the same, and the argument quite as potent. With this computation in mind, it is easy to understand why the stock in some instances was subscribed four times over by those interested in obtaining better roads.

Around Philadelphia were ordinary mud roads, which were impassable during a large portion of the year. The western terminus of the Lancaster pike was to be in the Susquehanna valley, and a large and fertile territory would thus be opened to trade in this city. The business of merchants would be increased, the resources of the country would be more fully developed, and industry would become more active. It mattered not whether the profits of the enterprise were to be shared by the subscribers as dividends to stockholders, or were to come in the form of increased business prosperity; the inducement for capitalization was present, and the plan of profit sharing was important only in determining the class of interests to which appeal was to be made for the capital necessary for the improvement. Certain it was that the enterprise would be a fruitful investment to the community at large. If the subscriber were an investor (a capitalist), he would look to dividends; he would base his judgment upon a rate of toll which would bring to the corporation the largest income. If he were a merchant, a manufacturer, a farmer, or a legislator representing the

various interests of the state, his prime motive might be that of lowering rates of toll as a means of extending trade or industry and increasing the net profits of business. An effort was usually made to draft the plan and limit the tolls in such manner as to appeal to both classes. That this mental calculation was ever present in the minds of the people, as well

as a guiding principle in legislative action, **How profits are divided** appears not only from the contemporary press, but also from the assembly records themselves.

The ever present question was, what is the lowest maximum rate of toll which will leave a margin sufficient to attract capital to the enterprise? In some instances, the toll was fixed at a definite maximum per mile; in others, greater latitude was left to the company for the exercise of discretion by the introduction of a clause limiting profits to a maximum rated to capitalization. Still other charters contained both regulatory provisions. Thus the charter of the Eastern and Wilkesbarre turnpike road company in 1803 prescribed the tolls, and limited the dividends to six per cent on the stock.¹ The Uniontown and Cumberland charter in 1804 prescribed the tolls, and limited the dividends to nine per cent on the stock.² The apportionment of profits was a compromise in which a very large percentage of the gain was distributed to the general community in the form of lower rates, a certain maximum rate of toll being given to the company as a source of dividend.

A hundred miles of good road on the seacoast was but a narrow fringe when compared with the network of traffic lines necessary to serve a great stretch of inland territory which could not be economically reached by a road wagon. Under ordinary conditions, wheat at a dollar a bushel cannot be hauled with profit more than one hundred and fifty miles; while lumber, charcoal, mineral coal, iron ore, hay, and grain will permit of transportation a much less distance.

¹ Smith, *Laws of Pa.*, IV, 7.

² *Ibid.*, IV., 141.

The only solution for the transportation problem for a large portion of the interior was therefore to be found in further improvement, better equipment, and lower cost. In England the canal had already proved a success to the producer in lowered rates; and to the investor in handsome returns in the form of dividends. By means of a canal a single horse could draw from ninety thousand to one hundred and twenty thousand pounds as easily as two thousand pounds could be hauled by wagon on a turnpike. With this equipment one horse and one drayman could haul as much as fifty horses with fifty carts and fifty draymen. In the most favorable localities the capital cost of a canal was from three to five times greater than the capital cost of a turnpike. Where the lay of the land was less favorable to canal construction, the capital cost increased in proportion to the difficulties of excavation and the expense of locks to obtain water level.

This large capital cost confined the advantages of canal transportation to a long haul. Within a narrow radius the saving would be small; in the well settled and well improved districts, the average gross return from an acre of agricultural land did not exceed ten dollars. Assuming that on a turnpike it would cost one dollar to market the produce of an acre of land ten miles distant, the saving within this small radius would not pay the interest on the increased capital cost of a canal. At twenty miles, however, under exactly similar conditions, it would cost three dollars per acre; at fifty miles the cost of carriage over a turnpike would be five dollars per acre. The advantage to the producer from a cheaper means of transportation would increase directly with the distance, and at fifty miles the inducement to canal construction would be five times as great as at ten miles. From fifty to one hundred miles back from the coast, or from navigable waters, every interest would favor canal construction

Investment basis of the canal

Advantage in the long haul

wherever there were sufficient resources to warrant the expenditure.

Immediately after the Revolution several canals were projected, and as already shown, Washington was active in the promotion of the Potomac company. But the country was not sufficiently developed to furnish a base for long haul operations. With the beneficial results following the construction of the first canals there arose a demand for a means of reaching interior points which were beyond the range of water transportation. For a large portion of the country some improved form of land transportation was imperative, and the great question before the people was by what means this could be obtained. The success of the railroad in England furnished the answer to this question.

We may not say, therefore, that investment in the early railroads in this country was a venture in the dark. The results of experiments in England were carefully considered, and much attention was given to the study and exposition of the economic advantages to result from the introduction of the railroad in particular localities. That this is true may be shown by this sentence from a message of Governor Lincoln of Massachusetts, in which he considered the proposed Boston and Providence railroad: "From satisfactory estimates, and calculations upon the present travel and occasion of transportation, the net receipts from use of the road, after deducting all charges for keeping it in repair, carriages, &c. and upon a saving of one-half in the present cost of transportation, will amount to a sum exceeding sixty thousand dollars per annum." The natural conclusion, therefore, was "that the construction of the road would be of great public advantage, and a profitable investment of capital."¹

This estimate was made for a region well settled, and one in which there was already a good turnpike road which travel-

¹ See Note 1 on opposite page.

lers reported the best in America. The entire length of the proposed road was to be only about thirty miles, and yet the investment value was considered to be such as to earn about forty per cent on the cost each year. A portion of this was to go to the general community in the form of lower rates; the remainder was to go to those furnishing the capital as return for investment. Estimates of similar nature might be multiplied.

Effort to secure a fair division of the profit which might accrue from improved methods of transportation between the producing public and those who might contribute the funds necessary to the undertaking found expression in nearly all of the early charters. In this the legislatures followed the practice established with respect to turnpikes. Commercial rivalry between important trade centres was directly appealed to; and not only was local pride and community interest urged as a reason for support, but the investor was also interested through promises of dividends to be realized on the capital necessary to construct a more convenient means of transporting goods and passengers from the distant interior.

The manner in which the interior interests regarded

¹ *Niles*, XXXIV, 9. (1828.) The estimate upon which this statement was based follows:

INCOME

Passenger traffic equal to 50,000 for entire trip @ \$1.00 each.....	\$50,000
Freight traffic equivalent of 8,450 tons entire trip:	
4.625 tons @ \$4.75 per ton }	..... 34,000
3.825 tons @ \$3.15 per ton }	.....
Total	\$84,000

EXPENSES

Annual expense of horses, carriages, drivers	\$6,750
" " for heavy transportation	3,505
" 10 % additional for covering errors	1,025
Expense of superintendence making repairs	<u>4,000</u>
	<u>15,280</u>
Net income.....	\$68,720

improvement of this kind is illustrated by a letter from a member of congress to Niles' Register: "I have just received letters from two of ten or fifteen merchants at Wheeling, who state that they alone have forwarded by wagons to Baltimore, on the Cumberland road, during the last year, 3,000,500 lbs. of country produce, tobacco, &c. equal to about 1,750 tons; loading perhaps, 900 or 1,000 wagons; and one of the gentlemen expresses the confident opinion that if the cost of transportation were reduced $\frac{1}{3}$ or $\frac{1}{2}$, there would be forwarded from that place alone and the neighborhood, (independent of all produce of the rich and productive intermediate country) at least 200,000,000 lbs. or 100,000 tons of produce annually. Such has been the effect of the *Cumberland road*, and such would be the effect of a *rail road from Baltimore to the Ohio, at Wheeling or Pittsburg*."¹

The introduction of the steam locomotive gave to the railroad its advantage over the canal. Time in transporta-

¹ Niles, XXXIII, 18. (1828.) The following statement, compiled in England, showing the advantage of the railroad over the common road, was much used by promoters in this country:

Miles on each Side	Tons	Expense by Railway	Expense By Common Road	Difference in Favor of Railway	Twenty-Year Purchase of Difference	Thirty-Year Purchase of Difference
		£ s. d.	£ s. d.	£ s. d.	£	£ s.
1	2,082	242 12 6	856 17 6	614 5 0	12,285	18,427 10
2	4,164	485 5 0	1713 15 0	1228 10 0	24,570	36,855 0
3	5,246	727 17 0	2570 12 6	1842 15 0	36,855	55,855 10
4	8,328	970 9 6	3427 10 0	2457 0 0	49,140	73,710 0
5	10,410	1213 2 0	4284 7 6	3071 5 0	61,425	92,137 10
6	12,492	1455 14 6	5141 5 0	3685 10 0	73,710	110,565 0
7	14,575	1698 7 0	5998 2 6	4299 15 0	85,995	128,992 10
8	16,656	1940 19 6	6855 0 0	4914 0 0	93,280	147,420 0
9	18,738	2183 12 0	7711 18 4	5528 5 0	110,565	165,847 10
10	20,820	2426 4 6	8568 15 0	6142 10 0	122,850	184,275 0

tion is one of the chief elements of cost. A saving of time is a saving of expense. The railroad allows of the transportation of many products which otherwise might not be marketed at all, — products which deteriorate rapidly with age. By the introduction of the canal and the railroad the margin of profitable industry was extended a thousand or fifteen hundred miles inland. The saving of time made by the adoption of steam locomotion brought the resources of the continent in touch with the common market place.

As late as 1817 it was stated in a report to the New York legislature that the cost of transporting a ton of freight from Buffalo to New York was one hundred dollars, or twice the value of wheat at Buffalo and four times the value of corn.¹ The advantage to be capitalized in providing some cheaper mode of transportation from the Great Lakes to the Hudson was therefore apparent. With the building of canals, transportation costs were greatly reduced, but their construction absorbed so much capital that they could be employed to advantage only upon long distance business. Within any short radius, productive possibilities were so limited that the saving from the introduction of artificial waterways was too small to warrant their construction. The introduction of canals, therefore, necessarily resulted in greatly enlarging the territory tributary to the marketing centres which they were built to serve, but they could not effectively serve that great interior from which the products of American industry were to come. This was to be reached by some mechanical means which could serve each of the small areas of the continent. The character of appeal made to the community for the support of railroad projects, and the economic basis for its capitalization, is illustrated by the following:²

**Advantage of
the railroad
over the canal**

**The railroad's
advantage over
the canal in the
long haul**

¹ *Hunt*, LX, 161.

² *Ibid.*, XXIX, 377; *Amer. Railroad Jour.*, XXV, 705-6, 928-9.

94 ECONOMIC BASIS OF TRANSPORTATION

TABLE SHOWING THE VALUE PER TON OF WHEAT AND CORN AT DIFFERENT DISTANCES FROM MARKET—UPON A RAILROAD; AND UPON A COMMON ROAD.

MILES	RAILROAD		ORDINARY ROAD	
	Wheat	Corn	Wheat	Corn
0 (At Market)	49.50	24.75	49.50	24.75
10	49.25	24.60	48.00	23.25
20	49.20	24.45	45.50	21.75
30	49.05	24.30	45.00	20.25
40	49.00	24.15	43.50	18.75
50	48.75	24.00	42.00	17.25
100	48.00	23.25	34.50	9.75
150	47.25	22.50	27.00	2.25
160	47.10	22.35	25.50	.75
170	46.95	22.20	24.00	
200	46.50	21.75	19.50	
250	45.75	21.00	12.00	
300	45.00	20.25	4.50	
320	44.70	19.95	1.50	
330	44.55	19.80		

Thus a ton of corn one hundred and seventy miles from market was not worth hauling over a common road, but its value when rail carriage was possible was \$22.20. And a ton of wheat while not worth the cost of a wagon haul of three hundred and thirty miles, by the very fact of the existence of a connecting line of railroad was worth \$44.55. Admitting that it must have been based upon a rough approximation, such a showing as this contributes toward a better understanding of the spirit which animated those who supported the early railroad ventures. Although many problems remained to be worked out, and the future could not be clearly seen, the one fact that the railroad presented itself as so tremendously effective an instrument of trade compelled its adoption. "It is not merely because his supreme

happiness consists in that speed which annihilates time and space," wrote Chevalier in 1835, "it is also because he perceives, for the American always reasons, that this mode of communication is admirably adapted to the vast extent of his country, to its great maritime plain, and to the level surface of the Mississippi valley, and because he sees all around him in the native forest, abundance of materials for executing these works at a cheap rate. This is the reason why railroads are multiplied in such profusion, competing not only with each other, but entering into a rivalry with rivers and canals." ¹

¹ Chevalier, *Society, manners and politics in the U. S.*, 337.

CHAPTER VI

STATE FUNDING OF TRANSPORTATION ENTERPRISE

As a funding institution, a state has two methods of obtaining capital, by taxation and by sales. The first is by compulsory contribution; the second by voluntary consent of the contributor. Sales may be of two kinds: sale of services and goods, and sale of credit obligations, the value of which in turn depends upon the judgment of purchasers as to the amount of revenue which will be available for meeting these obligations when due. A state is as far-reaching

**The state as a
funding institution**

in its funding powers as the resources of the community which is to be served. Its success in converting these resources to its use is conditioned upon the nature of the governing body, the consent of the governed, and the capital available for levy or voluntary contribution. Taxation is an appropriation of private funds; while the state may when necessary go to the point of confiscation of private capital, as a current funding measure, its effective revenue powers are limited to the income surplus of the people. In a new country without sufficient capital for local production, tax levies are necessarily burdensome. In many instances efforts to obtain any considerable amount of revenue are entirely futile.

THE ESTABLISHING OF STATE CREDIT

America's first hope for support to transportation enterprise had been in the national government; later it was directed to the states. With the establishment of state credit abroad, appeals to the national government for aid

became less strenuous, and state capital came to be the subject of popular interest. Both John Quincy Adams and Clay advocated the nationalization of internal improvements, but their influence waned until they had little following. In 1818 the house of representatives declared its power to appropriate money for the construction of roads and canals and the improvement of watercourses,¹ but a bill providing for the erection of toll gates on the national road was vetoed by Monroe in 1823, on the ground that it implied the power of congress to execute and enforce a general scheme of internal improvements.² An act appropriating money for the survey of routes for such roads and canals as the president might think of national importance was passed in 1824,³ and another in 1825 subscribing to the stock of the Chesapeake and Delaware canal.⁴ In 1825 a direct appropriation was made for the extension of the Cumberland road to Zanesville, and a survey of the route through to Jefferson City.⁵ During the administration of Adams, the champion of nationalization, many federal appropriations were made for internal improvements. Stock was taken in canal companies, and public lands were granted in aid of turnpikes and canals.⁶ But the support given was small compared with the capital required for the opening up of the commerce and industry of the interior. The panic and succeeding years of financial depression coincident with Adams' administration were circumstances favoring denationalization. Adams as the apostle of the national idea was made to bear the odium of commercial disorder and industrial unrest, and Jackson, in search of a policy which would bring political success in 1828, organized the anti-national sentiment.

¹ Wheeler, Hist. of congress, II, 168.

² Richardson, Messages, II, 142-83.

³ Stat. at large, IV, 22.

⁴ Ibid., IV, 124.

⁵ Ibid., IV, 128.

⁶ McDonald, Jacksonian democracy, 134-7.

Hope of national aid was further weakened by conflicts over state and national jurisdiction. This is illustrated in the history of the Chesapeake and Ohio canal. The states of Virginia and Maryland attempted to unite to carry out this enterprise, but the undertaking took on such proportions that appeal was again made to the central government. Popular meetings were held in Pennsylvania, Virginia, Maryland, and Ohio in 1823, and delegates were chosen to meet in convention at Washington. At each turn a serious obstacle was met; for the concurrence of five different political bodies was required.

Conflicts between state and national jurisdiction

State authority could not be overlooked, and the aid of the federal government was regarded as a necessity. Charters were in conflict; and amendment followed amendment. A bill conditioned upon the coöperation of the states interested was finally carried through congress in 1825, and signed by President Monroe. But each state stood in the way of the others, and all were jealous of the general government.

Soon after the return of peace in 1815, the South found that Europe afforded a better market for cotton and a better place to purchase manufactured articles than existed at home. More than this, the large agricultural profits in the South stood in the way of industrial development. The alignment on the tariff of 1824 is significant. The seacoast interests of Massachusetts, Maine, and New Hampshire still wished to be free to engage in foreign trade; they were therefore opposed to protection. The South for quite different reasons was a unit against increased duties; and New York, New Jersey, Delaware, Pennsylvania, Ohio, and Kentucky were in favor of the tariff, home markets, and internal improvements.¹ With the breaking down of the shipping and

Change in the attitude of the South and New England

¹ Turner, *Rise of the new West*, 236-44; Stanwood, *Amer. tariff controversies*, I, 243-83.

foreign trade interests and the upbuilding of manufactures, New England was finally joined to industrial Pennsylvania, agricultural New York, and the grain-growing West. From this time the line of economic and political cleavage was along the zone of the cotton belt. The South came to stand for slavery and free trade; the North, following the line of its greatest economic interest, clung to protection, home markets, and free labor. Territorial expansion was fostered by each section as an instrument of political advantage, and for the purpose of maintaining the balance of power in the national government. With the development of transportation routes, the grain-growing districts joined in a compromise looking toward free trade with Europe; but as between North and South the antagonism grew until under military compulsion the South was forced to adjust its interests to the industrial system of the North.

It was this situation which in 1828 caused the South to stand solidly against the programme of nationalization. The first success in state funding brought together all the forces interested in state contracts, state improvements, and state banking; and these forces were sufficient to carry the North and the West as well as the South. A local and state basis for capitalization of enterprise having been found, the aid of the national government was considered of less importance in the North and the West, while in the South, where the United States bank was opposed as a tyrannical monopolist and as a tool for politicians, the national government was regarded almost as an instrument of oppression. Jackson's success at the polls, and his veto of the bill authorizing subscription to the stock of the Maysville and Lexington turnpike, was followed by Clay's abandonment of the policy of national patronage to internal improvements; and even Adams admitted that the results of the system of national aid had been disappointing. Thereafter, congressional appropriations for inter-

**Abandonment
of the na-
tional policy**

nal improvements appeared only in the form of "riders" to general appropriation bills, and the matter of financing transportation projects was definitely passed over to the state governments.¹

BEGINNING OF THE ERA OF STATE FUNDING

New York, as has been already said, was the first to attempt a general scheme of funding internal improvements. This state was thoroughly alive to its advantage of location, and to the importance of cheaper transportation in the development of its resources. Heretofore the commercial position of New York City had been inferior to that of Philadelphia, but some progressive citizens had the imagination to see that by the construction of a canal to the West this situation would be reversed. In the early part of the century, attempts had been made to obtain funds for this purpose, but without success. After the war, prospects brightened. A public meeting was called in New York in the autumn of 1815; addresses were made by leading citizens, and a committee was appointed to prepare and circulate a memorial in favor of the project. This memorial was presented for signatures at public meetings along the line of the proposed route, and governor and legislature were besieged with petitions. A bill "for improving the internal navigation of this state" was passed in 1816, authorizing the sum of \$250,000 to be borrowed each year (not exceeding \$2,000,000 in all), and appropriating \$20,000 for surveys.² The surveyors reported that the estimated cost of the Erie canal was \$4,881,738, and that of the Champlain canal, \$871,000. In 1817 a bill was passed pledging the credit of the state to the amount required for these undertakings.³

Heretofore, the causes of failure to obtain financial sup-

¹ Johnston, *Internal improvements*, Lalor, II, 572.

² L. 1816, c. 237.

³ L. 1817, c. 262.

port for works of this nature had been the inability of private parties to assemble funds for large projects, and the neglect to organize a public funding system which would attract foreign capital. The success of the New York scheme lay in the fact that a separate fund was created out of existing income from taxes, licenses, etc., to meet the interest on the bonds without relying upon the returns from the proposed canals. This gave confidence to the foreign investor. Moreover, New York had several strong financial institutions which aided materially in the placing of loans. When in 1818 a million dollar loan was authorized, the whole amount was taken by the Manhattan company, — a two million dollar concern which had been organized for the purpose of funding the water system of the city of New York, and carrying on a banking business at the same time. This bank was made the office of registration and transfer of the public securities, and the depository of state funds.¹ The Erie canal was completed in 1825 at a cost of \$8,801,394; and the income from tolls soon relieved the state from the necessity of contributing to the interest fund by taxation, and accumulated a surplus for the payment of the principal.

Success of
New York's
canal system

1818 a million dollar loan was authorized, the whole amount was taken by the Manhattan company, — a two million dollar concern which

MASSACHUSETTS AND PENNSYLVANIA

The successful funding of New York's canal brought the other states to realize the possibilities of promotion through use of their credit, and soon the whole country was stirred to similar enterprise. The foreigner was ready to invest; and the American people gladly embraced the opportunity for which they had so long been waiting. But when the question as to whether railroads should be undertaken by

¹ L. 1818, c. 282; L. 1819, c. 70. See also: L. 1799, c. 84, "An act for supplying the city of New York with pure and wholesome water"; Knox, *Hist. of banking*, 394-6; Bangs, *A historic institution*, *Harper's Mag.*, XCVIII, 971-6; *Banker's Mag.*, IV, 137-43.

the state presented itself in Massachusetts, neither governor nor legislature was prepared to decide. The canal to the Hudson had been proposed as a state work,¹ and the commission which prepared plans for the railroad to that river labored under the impression that it was to be undertaken directly by the state.² Finally, the governor despairing of legislative action and knowing that capitalists were prepared to assume the undertaking, recommended the construction of railroads by corporations which should be subsidized by the state whenever such aid should be imperative or expedient.³ With the adoption of this plan ended the period in which state ownership of railroads was a pressing question in Massachusetts. This policy of corporate ownership has not been departed from except for purposes of salvage.⁴ In 1863 the state, upon the failure of the Troy and Greenfield railroad, was forced to take over the Hoosac tunnel enterprise, in aid of which it had already issued \$924,900, or about half the amount authorized. When the tunnel was opened for operation in 1876, the expenditure on that account aggregated \$17,322,000, and by 1887, when the property was turned over to the Fitchburg railroad, the cost had reached \$26,357,426.⁵

Until 1821 Pennsylvania had confined its funding activities to taxation. It had contributed liberally to the roads and bridges of the state through appropriation from the state

¹ Report on the routes of canals, 174-5. (1826.)

² Report on the practicability and expediency of a railroad from Boston to the Hudson, 73-6. (1829.)

³ Speech of Levi Lincoln, January 6, 1830: 7-10.

⁴ It is to be noted that Massachusetts was more favorably situated for private funding of large enterprises than any other state. The financial strength of New England had been shown by the fact that its banks continued to make specie payments throughout the war. For the financing of foreign trade and manufactures, Massachusetts had not wanted for funds.

⁵ Bullock, *Hist. of the finances of Mass.*, 71-3.

treasury; it had also subscribed to the stock of turnpike companies, bridge companies, and banks. It then entered upon a policy of obtaining capital by borrowing. Aroused by the approaching completion of the Erie canal, the legislature in 1825 passed an act providing for the appointment of canal commissioners to undertake preparations for the establishment of a canal between the eastern and western waters of the state.¹ In the following year, the construction of the Pennsylvania canal was authorized along the portion of the route between Philadelphia and Pittsburgh where a waterway was practicable. Over the hills between the Schuylkill and the Susquehanna and across the crest of the Alleghanies between Hollidaysburg and Johnstown, canal construction was clearly impracticable. The legislature therefore authorized in 1828 the construction of a line of railroad to connect Philadelphia with the eastern terminus of the canal system at Columbia,² and three years later provided for the Portage railroad over the mountains.³ The Philadelphia and Columbia railroad was not only one of the earliest works of its kind in this country, but "the first railroad undertaken in any part of the world by a government."⁴ The Portage road was largely a series of inclined planes worked by stationary power. The entire main line was opened in 1834, but as a rival of the Erie canal it was a failure. To avoid the delay and expense attending the use of the inclines, Philadelphia merchants soon found it to their interest to pay the freight on their goods to New York, and then ship to the West over the Erie canal.⁵ In consequence, the state works of Pennsylvania never paid, except indirectly as a general benefit to trade.

¹ L. 1824-5, c. 126.

² L. 1827-8, no. 98.

³ L. 1830-1, no. 104.

⁴ Wilson, *Internal improvements of Pa.*, 13-20.

⁵ *Amer. Railroad Jour.*, XXV, 67.

For the main line a debt of \$33,364,555 was ultimately incurred. The Lake Erie connection of 185 miles, improvements on the Susquehanna and Delaware, besides lateral canals and railroads, involved the state in a debt of over \$40,000,000 within fifteen years. Ten years after the main line was opened, the state offered to sell; but it was not until 1857 that this was possible. The purchaser was the Pennsylvania railroad, which paid \$7,500,000, or about half a million dollars less than the amount which had been expended in the construction of the Philadelphia and Columbia and Portage railroads.¹

ACTIVITY IN THE WEST

As indicating the rapidity with which the West took up the ideas of the East, it is noteworthy that Governor Bond in his message to the first state legislature of Illinois recommended the construction of the Illinois and Michigan canal. This was in 1819.² During the thirties the new states of the Middle West put forth projects for systems of internal improvements which were as far beyond their financial resources as they were in excess of any needs of the population for many years to come. Three of these states, Illinois, Indiana, and Michigan, adopted plans which included the construction of railroads as state works. In 1837 a law was passed by Illinois authorizing the construction of railroads from Galena to Cairo; from Alton to Shawneetown; from Alton to Mount Carmel; from Alton to the eastern boundary of the state near Terre Haute; from Quincy to the Wabash; from Bloomington to Pekin; and from Peoria to Warsaw. It was also planned to build three thousand miles of roads, and to improve the Kaskaskia, Illinois, Great and Little Wabash, and Rock rivers, and \$200,000 was distributed as compensating bounties to those counties which were not to be

Railroad projects in Illinois

¹ Bishop, State works of Pa. (1907.)

² Ford, Illinois, 28.

directly benefited.¹ Owing to sectional rivalry, it was provided that the work of construction should begin simultaneously all over the state.

In the summer of 1837 the fund commissioners succeeded in negotiating a loan, and work was begun before the end of the year. They had also been authorized to subscribe to the stock of the newly chartered state banks, which were to act as fiscal agents of the canal and railroad funds. The panic of 1837 caused these banks to suspend specie payments, and this suspension was legalized at a special session of the legislature. Notwithstanding this, the fund commissioners succeeded in effecting loans both in America and in Europe, some of which were put out by the United States bank under its Pennsylvania charter. At the next legislature, additional works were authorized. By the summer of 1838 the disrepute into which state credit had fallen temporarily interfered with the making of new loans. The state had lost heavily in the bankruptcy of state banks, and in the failure of Wright and company, its London fiscal agents. But other loans were obtained, and many bonds were disposed of to contractors. By this means the work was continued until the people, tiring of delay and political frauds and fretting under the constantly increasing burden of taxation, were glad to dispose of their railroad interests to private corporations.² When in the panic of 1847 credit again completely failed and the treasury was reduced to insolvency, but one railroad had been completed. After contracting a debt of \$15,000,000 the state had, in addition to the Northern Cross road (extending from Meredosia on the Illinois river to Springfield), nothing but unfinished canals and detached and useless grades to mark the system which had been so splendidly planned.³

¹ L. 1836-7: 121; Ford, 179-89; Ackerman, *Early Illinois railroads*, 22; Chevalier, *Society, manners and politics in the U. S.*, 250.

² Ford, 189-98; Brown, *Illinois*, 417-27.

³ Ackerman, 24-5; *Hunt*, XXIII, 655.

In 1836 Indiana launched out into the construction of a complete system of internal improvements comprising canals, turnpikes, and railroads, designed to open up the remotest corners of the state to communication with the Lakes and the Ohio. As a part of this plan the construction of a railroad from Madison on the Ohio river to Lafayette on the Wabash canal was undertaken.¹ A section of this road was opened in 1842, but the state having unwisely undertaken too many projects at a time, was compelled to surrender this uncompleted work to the Madison and Indianapolis railroad company in 1843.² Upon this project

there had been expended over \$1,600,000.³ In return the state reserved the right to a share of net earnings to be represented by stock proportioned upon the mileage completed before the surrender, but this was not to become payable until after eight years. The state finally sold its interest in 1852.⁴

The first session of the Michigan state legislature in 1837 authorized a loan to provide for the construction of a system of roads, canals, and railroads. There were to be four lines of railroads, three of which were to extend across the state by a northern, a central, and a southern route, respectively. In all nearly six hundred miles of railroad were provided for.⁵ This action had been preceded by the granting of charters to private corporations; and it had been brought about by the failure of those corporations for want of funds. Starting upon the central route where the work had been abandoned by a private company, the state

¹ L. 1835-6, c. 2; Message of N. Noble, Senate Journal, 1835: 19.

² L. 1841-2, c. 1; Loc. L. 1842-3, c. 132; Auditor's report, H. doc. 1843-4: 111.

³ Auditor's report, 1844: 40.

⁴ L. 1844-5, c. 52; Cottman, Internal improvements in Ind., *Ind. Mag. of Hist.*, III, 154-7.

⁵ L. 1837, no. 67; Adams, Public debts, 325; Scott, Repudiation of state debts, 161.

extended a line westward as far as Kalamazoo by 1846, when the road was sold to the Michigan Central railroad company for \$2,000,000, or a quarter of a million dollars below cost.¹ The southern route was sold the same year to the Michigan Southern railroad company for \$509,000, which was about half its cost. Upon the northern route less than \$100,000 had been expended, but this was a total loss. In 1847 the right of way along this route was given to the Port Huron and Northern Michigan railroad company.² As in the case of Illinois, action was compelled by the financial needs of the state. If the enterprise was to be continued, the people saw that they must face either heavier taxation or repudiation, neither of which they were willing to do. The only alternative was to throw off the burden of railroad construction, and to offer sufficient inducements to attract private capital to continue the work.

STATE RAILROADS IN THE SOUTH

Contemporaneous with these Western experiments in state funding of public works was the construction of the Western and Atlantic railroad by the state of Georgia. This line connecting Atlanta with Chattanooga was undertaken by the state because the route was so difficult as to discourage all private investors.³ The work was provided for in an act passed in 1836,⁴ and contracts were let for the first sections of the route three years later; but the decline of state bonds caused delays so that the road was not opened until 1851. Operation by the state was continued for twenty years, though in 1854 and again in 1857 agitation was set on foot for a lease to an operating company. While the charges

The Western
and Atlantic
of Georgia

¹ Kieth, Internal improvements in Mich., 31-3.

² Ibid., 36-8.

³ *De Bow*, XXI, 433.

⁴ L. 1836: 214.

of maladministration were in most cases unfounded, earnings did not compare favorably with the returns upon private roads. This was due, not only to the fact that the route had been one of particular difficulty, but also to faulty construction and extravagant salaries paid to those in charge. During the Civil war this line suffered in common with other Southern railroads; and in the reconstruction period it was the object of mismanagement and political plunder. By 1870 connecting lines began to protest against the dangerous condition of the track, and a movement was started which resulted in a lease of the property to the Western and Atlantic railroad company at a fixed rental. At the expiration of this agreement in 1890, a new lease was made to the Nashville, Chattanooga, and St. Louis railroad company, which is still in force.¹

The construction of a railroad across Virginia from tide-water to the Ohio was the favored project of the people of that state, but so great were the difficulties to be overcome in crossing the Blue Ridge that private capital was not attracted to the venture. For this reason the most difficult part of the work was undertaken entirely upon state account. In 1849 the board of public works was incorporated as the Blue Ridge railroad company, with authority to build a line over that section of the route from Blair Park through Rockfish Gap to Waynesburgh, a distance of seventeen miles, and to lease the completed road to the Virginia Central railroad company.² At the end of ten years the state possessed a unique railroad, consisting of four tunnels and a long series of high embankments.³ In 1855 the state began work upon the Covington and Ohio, from the western terminus of the Virginia Central at Covington to the Ohio river; and by 1861 there had been expended upwards of

¹ Phillips, *History of transportation in the eastern cotton belt*, 303-34.

² L. 1848-9, c. 147.

³ Report of the board of public works, 1853-4: x-xi; 1869: xii-xiii.

\$3,500,000 upon masonry and grading of the route as far west as the Kentucky boundary.¹ After the Civil war a change of plan was imperative, and in 1868 Virginia and West Virginia jointly surrendered this property to the Chesapeake and Ohio railroad company, which contracted to complete the road.² Two years later this new company also came into possession of the Blue Ridge railroad through the surrender of the state bonds to an amount representing the cost of the road, which was about \$1,750,000.³

Arkansas in 1897 made a belated attempt to provide for a state railroad, and to this end established a state board, which was endowed with corporate powers and authorized to receive gifts of lands and money. The state, however, would assume no liability for the debts of the board, and while loans were to be permitted, none could extend over more than three years.⁴ By this means it was hoped to capitalize the spirit of hostility toward the Missouri Pacific and other lines in the state by offering opportunity for competition. As the plan was obviously impracticable, no attempt was made to carry the law into effect.⁵

THE SPECULATIVE ACCOMPANIMENT OF STATE FUNDING

During the depression from 1825 to 1828, and again at the time of the disturbances due to Jackson's war on the United States bank, there was difficulty in obtaining capital for new enterprises. But with the chartering of state banks with the transfer of the Treasury surplus to these institutions, and with the increasing use of these banks to give strength to the market for state securities, the years 1835 and 1836

¹ Auditor's report, 1865: 25.

² L. Va., 1866-7, c. 280; L. W. Va., 1867, c. 93.

³ Message of Gilbert C. Walker, March 8, 1870: 9.

⁴ L. 1897, no. 38.

⁵ Message of Daniel W. Jones, 1897-8: 5.

may be characterized as years of financial folly, which find parallel only in the days of John Law. There seemed to be no limit to the capital which was ready to embark in internal improvements. The resources of the national government, which before the war were deemed essential, were now spurned, and their use was condemned as positively dangerous. The apparent prosperity and financial independence of the states was an influence so strong that it threatened the stability of the union.

The speculative mania which spread over the country affected not only state legislatures, but it also impressed itself upon county and town boards, and upon the people themselves. Even men who had reputations for conservative and investment opinion joined in the general land and townsite speculation. Discussing the causes of the failure of the United States bank, John J. Knox said: "Its management was from all accounts comparatively conservative until 1835, when any restraint which its managers felt under its national charter appears to have been withdrawn. Instead of retrenching after 1836, the management grew more and more reckless, and by July, 1840, it had borrowed upon its post notes and bonds more than twenty-three millions of dollars. During this time the loans on stocks continually increased. It seemed impossible for the managers to say no to any one. All projects were favorably received, and thus projectors found in Mr. Biddle a sympathetic listener. Commissioners and agents having bonds issued or guaranteed by the States they represented, to place upon the market to speculators in turnpike and land company stocks, all came to Mr. Biddle, and everything in the shape of an incorporation looked to him as the one who could place their credit on a firm basis. Bonds of Mississippi, Michigan, and Illinois, of the Territory of Florida, and even of the

struggling Republic of Texas, received from him the impress that was to make them pass in the markets of the world. Few seem to have been sent away disappointed. . . . In 1840 it was found that the assets of the institution consisted chiefly of all kinds of internal improvement, and bank and State stocks and bonds. There was hardly an enterprise, good, bad or indifferent, in the United States that was not represented in the list. For years Mr. Biddle had been courted and flattered as the financial autocrat of the country. He had, as a rule, been successful in the financial operations he had undertaken, representing as he did an institution of immense capital and in high credit both at home and abroad. . . . The craze for internal improvements in most of the States had thrown on the market a new class of securities. Many others besides Mr. Biddle were deceived as to their value. The loans on stocks from 1835 to 1836, made contrary to the previous general policy of the bank, may have been made in anticipation of a rise in the stocks of all internal improvements from the distribution of the surplus among the States, authorized by the act of June 23, 1836, which had been under consideration for some time previous.”¹

An analysis of the business judgment which lay behind such transactions was thus given by Governor Ford, of Illinois: “It appears . . . that it was believed; that the people were expecting and anxious for a system of internal improvements; that the system would be of great utility in multiplying population and wealth; that such a system was entirely practicable; that the cost of it could easily be guessed at without previous surveys; that even small sums could be profitably expended upon the rivers; that estimates for railroads could be ascertained by analogy and comparison with similar works in other states; that the system would cause a great deal of land to be entered, and increase the land

¹ Knox, *Hist. of banking*, 77-8.

tax; . . . that the tolls on parts of the roads, as fast as they were completed both ways from the crossings of rivers and from considerable towns, would yield the interest on their cost; that the water-power made by improvements on the rivers would rent for a large sum; that the lands were to be entered all along the roads by the State, which were to be re-sold for a higher price; that eminent financiers Premises on which excesses were based were to be elected fund commissioners, whose high standing and eminent qualifications were to reflect credit upon the State, and to add to its resources; and with all these resources at command, that no great financial skill would be required in any future legislature to provide for paying the interest on the loans and carry the system to completion, without burdening the people. . . Not a solitary one of these propositions has borne the test of experiment; but all have resulted just contrary to what was predicted. I will mention also, that it was confidently believed, in and out of the legislature, that the State stock to be issued would command a premium of 10 per cent, which would go to swell the interest fund; that the stock in the banks would yield enough to pay interest on bank bonds and a surplus besides; and that in fact the system was to be self-acting and self-sustaining; to provide for its own liquidation and payment, and enrich the State treasury into the bargain.”¹

Responsible for much of this folly was the popular misconception of the functions of financial institutions. A bank was supposed to create capital through some process of financial magic; and it was due to this belief that many of the early banking charters were granted subject to the condition that subscriptions be made to internal improvement enterprises. Thus Maryland from 1812 to 1831 forced the banks of that state to subscribe over \$1,500,000, or one-eighth of their aggregate capital, to the stock of various

¹ Ford, 188-9.

turnpike companies.¹ And Pennsylvania in 1836 in chartering the United States bank as a state institution required the subscription of over \$10,000,000 to the stock of four railroad companies, five turnpikes, and one canal.²

THE CRISIS OF 1837

The mania reached its climax in the panic of 1837. Until then, foreign investment continued, and American securities stood high upon the market. "In 1836," says Worthington, "the speculation spirit was at fever heat. The United States debt was paid, credit everywhere was abundant and large sums of money were poured into the country for investment."³ The crisis of 1837 and the long depression which followed left some of the states practically bankrupt. American bonds and securities were reduced from forty to sixty per cent, and some of them became unsalable. Many of the internal improvements undertaken were uncompleted, and so were not in a condition to produce income. By offering higher wages and discounting their own paper, the states were able for a time to meet maturing claims for interest, but five years of depression left them financially stranded. State debts aggregated \$231,000,000; and city obligations amounted to \$27,000,000. Banks were suspended; business prostrate; and property depreciated. With interest on state and local debts alone amounting to an annual charge of nearly \$16,000,000, there was a total population of but \$17,060,000 to pay it. The people, however, were in no frame of mind for taxation; they were despondent and almost hopeless. A more dismal picture is not presented to the student of American history. The only hope lay in some

State bank-
ruptcy and
popular de-
spendency

¹ Bryan, State banking in Md., Johns Hopkins Univ., *Studies*, XVII, 45-7, 60-1.

² L. 1835-6, no. 22.

³ Worthington, *Finances of Pa.*, 39.

scheme for refunding, or in repudiation. But with credit wrecked abroad, the states were unable to refund.¹

On the other hand the general government was free from debt, and its credit abroad was of the best. Besides all of the powers of taxation by impost and excise, the revenues from the public lands were at its command. Popular attention was therefore again turned to congress. Memorials for relief poured in from all parts of the country, and a committee was appointed in 1842 to consider the matter. This committee reported: "The memorials are signed by many thousand citizens of different States, of every pursuit of industry, and of all political parties, uniting generally in a prayer to Congress to issue two hundred millions of stock, to be divided among or credited to all the States, Territories, and the District of Columbia, upon an equitable basis. . . They all desire that the stock be issued upon the faith of the General Government, and the proceeds of the sales of the public lands be pledged for the payment of interest and principal. They unite in the expression of one common opinion — that industry has greatly lost its reward; that property and wages have fallen greatly in value; that confidence is impaired between man and man; that industrial enterprise is paralyzed; and that while they have the will, they have not the means or ability to discharge the annual exactions of direct taxes, which many of the States are forced to levy, in order to meet their engagements and preserve their plighted faith. And they express the earnest conviction, that confidence will not be restored; that industry, in all its departments, will not thrive; that general prosperity will not return and abide; that the faith of many of the States will not be maintained, nor the General Government itself recover and sustain its former high credit and character, unless Congress extends its aid, and by prompt, decisive, and enlightened

Second appeal
to the federal
government

¹ 27 cong. 3 sess., H. rep. no. 296, p. 106.

legislation, rescues the people and the States from their present depressed and embarrassed condition. With these views, and under these circumstances, the memorialists make an earnest appeal to Congress to exercise the powers and means which have been extended to it, and out of the vast resources which the General Government can make available, to extend its aid in this great emergency."¹

Since the time of Madison's veto, however, the popular attitude toward the participation of the national government in works of internal improvement had completely changed. Jackson and not Jefferson now represented the prevailing belief in the democratic party. The abandonment of the United States bank, the nullification episode of Calhoun, and Georgia's defiance of the national authority in the controversy over the Creek lands were circumstances which indicated the weakening of federal ideals. Moreover, the slaveholding states were becoming impressed with their danger from the increased development of the Northwest, which would result from the participation of congress in the support of internal improvements. Under such circumstances, the assumption of the state debts by the federal government was effectively opposed. Moreover, the

¹ Ibid., 1-2. The cause of the embarrassment, as expressed by the committee, was to be found in loans for public improvements. "Animated by a spirit of enterprise, in some cases perhaps imprudent, to develop their resources, and encouraged for a time by the aid of the national Treasury, [Jackson's distribution of the surplus revenue] some of the States embarked in systems of internal improvement too vast in design and too expensive for immediate accomplishment with their limited means, and, when suddenly all aid from the national Treasury was withheld, had recourse to their own separate credit to effect what only the joint action of the States and the General Government should perhaps have attempted, and which, by their united capacities alone, could have been successfully accomplished. The means and credit of these States became exhausted before their works were accomplished, and their only resource now for the payment of the incumbent debt and accruing interest, without aid of the General Government, rests wholly on direct taxation." — p. 2.

depression from 1837-43 was followed by an era of prosperity.

THE PASSING OVER OF STATE WORKS TO PRIVATE CORPORATIONS

The financial relapses after 1837 and 1847 brought about a second step toward decentralization; (for the people of the older states now had enough of state enterprise. The problem became one of lowering taxes and at the same time maintaining the benefits of the improvements which they had struggled so long to obtain. They turned again to the private corporation as the instrument through which public service undertakings could be financed and operated without burden to the people.) By 1857 the transportation systems of all the states except Virginia and Georgia had passed over into private hands, and the states, as well as the national government, fell back into merely political and administrative activities. (Beginning with the private corporation as a local funding agent impotent to finance the larger improvements, and passing through a period of state funding, transportation again had recourse to the private corporation) which was now grown to such proportions that with the aid of national land grants and national, state, and local subsidies, it was able to finance undertakings requiring millions of dollars. (It has been under the management and control of the private corporation that the work of reclaiming the West has proceeded, and our unparalleled transportation facilities have been developed.

CHAPTER VII

RIVALRY BETWEEN TRADE CENTRES IN ITS RELATION TO PROMOTION AND CAPITALIZATION

A FACTOR which must be considered in any study of the history of railroad promotion and capitalization is the rivalry between competing trade centres. Before the adoption of the constitution the colonies vied with each other in attempting to obtain a monopoly of ocean trade through the imposition of tariffs. After the removal of such obstructions by constitutional inhibition, the spirit of rivalry began to express itself in measures for the development of inland trade. Even before the Revolutionary war a sharp conflict had arisen between Philadelphia and Baltimore for the control of the trade of the Susquehanna valley. As settlement got beyond the range of an ordinary wagon haul from Philadelphia, the natural trade outlet was down the Chesapeake to Baltimore.

Early attempts to monopolize the ocean trade
Philadelphia and Baltimore
York, Lancaster, Columbia, Harrisburg, and other towns grew up on this central water-course and its western branches. They came to appreciate the economy of the use of arks, rafts, and flatboats, and to join in appeals to the legislature for the removal of the obstructions to navigation which caused an estimated loss of from ten to twenty per cent of their cargoes.

It was a peculiar quality of the Susquehanna and its tributaries that navigation was less impeded from Columbia (Wright's Ferry) north and west, than from that point south to the Chesapeake. Above, the current was narrowly confined; below, the water spread out and formed bars and

shoals on which trees and other obstructions lodged.¹ This was one of the obstacles which nature put in the way of Baltimore's capturing the trade of Pennsylvania and central New York. To take advantage of these natural obstacles Philadelphia employed two methods. In 1771 surveys were made for the purpose of connecting the Schuylkill and the Susquehanna north of Columbia by means of a canal; the same year the Susquehanna was declared a public highway from Columbia northwards, the portion of the river between Columbia and the Maryland line being specifically excluded from the provisions of the act. Commissioners were also to be appointed to receive subscriptions for the removal of snags and other obstructions, but it was provided "that nothing in this act contained shall be deemed to enable the said Commissioners to clear the said River Susquehanna of and from the natural obstructions in the same southward of Wright's Ferry."²

To overcome these obstacles, Baltimore procured in 1783 from the Maryland legislature a charter for the Susquehanna and Tidewater company for the purpose of building a canal northwards from the Chesapeake to the Pennsylvania line.³ Such a canal must depend upon canals or river improvements in Pennsylvania as far north as Columbia. In 1785 the western and middle counties of Pennsylvania, whose trade advantage lay with Baltimore, had sufficient weight in the legislature to pass an act declaring the Susquehanna a public highway to the Maryland line.⁴ This law, however, proved ineffective. As a means of overcoming any advantage which Baltimore might derive from it, Philadelphia in 1786 set on foot a counter project for the building of a canal to connect the Chesapeake with the Delaware, with the

¹ A description of the river Susquehanna. (1796.)

² Carey and Bioren, *Laws of Pa.*, I, 516.

³ Kilty, *Laws of Md.*, November, 1783, c. 23.

⁴ Carey and Bioren, III, 50.

intention of diverting trade at the mouth of the Delaware. The same year a communication was sent to Delaware and Maryland, asking them to coöperate in the incorporation of the Chesapeake and Delaware canal company. In default of response from those states, the Schuylkill and Susquehanna¹ and the Delaware and Schuylkill² canal companies were incorporated in 1791 and 1792 to divert the trade of the Susquehanna above Columbia.

The Lancaster turnpike was another project which was designed to attract trade to Philadelphia, while the York turnpike was built as an aid to the merchants of Baltimore. The Delaware and Schuylkill and Schuylkill and Susquehanna projects were abandoned in 1795, on account of the scarcity of capital for works of internal improvement in the face of the greater returns afforded by foreign trade. The attempt to divert trade at the mouth of the Delaware was therefore renewed. Favorable legislation was obtained in Maryland, but upon the express condition "that this law shall be of no force or effect . . . until a law be passed by the Legislature of Pennsylvania, declaring the river Susquehanna to be a highway, and authorizing individuals or bodies corporate to remove obstructions therein at a period not exceeding three years from the first day of March, eighteen hundred."³ Philadelphia had an equal interest with Baltimore in the improvement of this river so long as its only hope of attracting trade was by means of a canal at the mouth of the Delaware. But it was obviously to its interest to oppose reciprocal action on the part of the Pennsylvania legislature in view of its interest in the success of the Union canal, which was promoted as a successor to the defunct Delaware and Schuylkill and Schuylkill and Susquehanna projects. This opposition was not relaxed until after the construction

¹ Carey and Bioren, IV., 88.

² Ibid., IV, 189.

³ Kilty, November, 1799, c. 16.

of the railroad between Philadelphia and Columbia had begun, when in 1830 Pennsylvania went so far as to permit the construction of dams in the Susquehanna below Columbia.¹

Between 1820 and 1830 Baltimore became convinced that as soon as the Chesapeake and Delaware canal should be completed, any improvement in the lower Susquehanna would result to the advantage of Philadelphia. It therefore projected a canal from Baltimore to Columbia along the west side of the Chesapeake but at some distance inland, and after the failure of this plan proposed the construction of a railroad from Baltimore to York, there to connect by canal or railroad with Columbia.

The surveyors of this road clearly indicated its purpose. They showed that competition with Philadelphia would become dangerous only when the current of trade was allowed to take a settled direction in the channels provided for by Baltimore's rival, but that in case this road should be constructed, "we make the efforts of our rivals tributary to our views, and they cannot make a foot of canal or railway, erect a bridge, or pave a turnpike road, which does not necessarily lead the trade or commerce embarked upon it directly to our door."²

But the building of a railroad required the sanction of Pennsylvania, and this was not obtained without a struggle. Philadelphia claimed that the aim of the Pennsylvania state works was to construct a complete system of transportation from Pittsburgh to Philadelphia, and that the city and county of Philadelphia paid one-third of the expense of the undertaking. The counties along the Susquehanna and its tributaries answered that they could not "derive any benefit from

¹ L. 1830-1, no. 58. See also *Ibid.*, resolution no. 10, and Carey and Bioren, VI, 179.

² Report of proceedings in relation to a railroad from Baltimore to the Susquehanna, 3. (1828.)

the canal system now in progress within the State," because, owing to their location, they had a "distinct interest wholly unconnected with and independent of Philadelphia or the Canal." For this reason they protested "against the restrictive policy that will enable the city of Philadelphia to command the trade of the Susquehanna country to seek an outlet . . . by way of Philadelphia . . . for the mere purpose of enriching her merchants at the expense of the farmers of the interior."¹ Notwithstanding this protest, the legislature refused to grant a charter to the Baltimore and Susquehanna railroad. In 1830 favorable legislation was obtained in the assembly.² But before the bill was finally acted upon in the senate, a mass meeting was called in Philadelphia which pointed out the folly of spending the state's money for the gain of a seaport of a rival state, and of permitting the passage of a law which would "prove the funeral knell of our city and county from which . . . seven eighths of the revenue of the State is derived."³ A mass meeting in York answered that "Baltimore is the market for the sale of the products of this part of Pennsylvania."⁴ Nevertheless the action of Philadelphia had the desired effect, and the bill was rejected in the senate.

A further attempt to pass such an act met with the same fate in the next legislature,⁵ and it was not until 1832 that the Pennsylvania legislature finally yielded.⁶ But even now the Maryland company was handicapped; for the right of construction was granted to the citizens of York, and it was not until 1834 that the company obtained the necessary grants. In the following year Pennsylvania incorporated the

¹ Preamble and resolution relative to the Balto. and Susq. R. R. (1829), 3-10; Swift, Report on the Susq. R. R. (1828), 8; Address by the board of directors to the mayor and city council of Baltimore (1830), 4-14.

² *Niles*, XXXVIII, 107.

³ *Poulson's Amer. Daily Advertiser*, March 25 and 27, 1830.

⁴ *Niles*, XXXVIII, 125.

⁵ *Ibid.*, XL, 47.

⁶ *Ibid.*, XLII, 81.

Susquehanna canal company for the construction of a canal from Columbia, the eastern terminus of the Pennsylvania canals, to tidewater.¹ In return, Maryland granted the Franklin railroad of Pennsylvania the right to connect with the Baltimore and Ohio railroad.² This ended the struggle between the two rival cities over the trade of the Susquehanna and its tributaries. By a strange coincidence the Baltimore and Susquehanna railroad and the Susquehanna canal were completed in the same year (1839). The canal was of as great advantage to Philadelphia as to Baltimore, for at least half of the descending trade on this route went to Philadelphia by way of the Chesapeake and Delaware canal. The railroad, on the other hand, was solely for the advantage of Baltimore, which was able thus to connect with the Ohio thirteen years before the completion of the Baltimore and Ohio to Wheeling. With the completion of the Union canal (the northern route) in 1827, the completion of the Chesapeake and Delaware (the southern route) two years later, and the connection with Pittsburgh by the Pennsylvania state system in 1834, Philadelphia's supremacy over the richest industrial state in the union was firmly established. Baltimore's next move was to gain control over the Ohio trade, and through the western terminus of the Pennsylvania system to make a successful entry to the Great Lakes. It was only after continued contest and compromise that Pittsburgh was entered, and it is said that the cost of overcoming the political obstructions to gaining terminal facilities in Philadelphia was a chief cause of the financial downfall of Maryland's greatest transportation company.

The natural obstruction to the Susquehanna river trade was only one of the adverse conditions which Baltimore had to meet. Located on the Chesapeake, the city was cut off

¹ L. 1834-5, no. 164.

² L. 1836-7, c. 79.

from a natural highway to the interior. On the Potomac were two aspiring towns which early entered into competition for commercial supremacy,—Alexandria and Georgetown. With the first effort of Washington and his colleagues to organize the Potomac canal company the spirit of rivalry between Baltimore and the Potomac towns became

Baltimore and the Potomac towns aroused. Two years before this company was organized, the Susquehanna and Tidewater company was chartered. Three surveys were made for the purpose of locating a canal route from Baltimore to the Potomac, and all showed that such a cut-off would not be feasible owing to the lack of water supply. Baltimore strenuously opposed the location of the national capital on the Potomac, urging that the national resources and the prestige of a capital city would combine to develop a great commercial rival. Despairing of canal competition, the projection of the Baltimore and Ohio railroad was Baltimore's counter plot to the Chesapeake and Ohio canal. The sharpness of the competition between these two enterprises is illustrated in the contest for right of way. The Baltimore and Ohio railroad reached the Point of Rocks in 1832. At this place it suffered a ten years' delay before the controversy with the canal company as to the right to build to Harper's Ferry was settled, and this settlement was effected only after a monetary consideration had been arranged with the canal commissioners.

It was one of the fateful coincidences which conspired to retard Baltimore's development that the city, with about one-third of the wealth and population of Maryland, had only two representatives in the assembly and one in the senate; and in the contest with the Potomac towns this was a circumstance which stood in the way of the political readjustment necessary to give it fair consideration. But though handicapped politically, financially, and by nature, the popular support given to every enterprise which looked toward its

development made Baltimore one of the leading factors in the promotion of transportation enterprise.

Farther down the coast were Charleston and Savannah, each with its tributaries, and each seeking to reach to the interior for commercial advantage. Between Charleston and Savannah the contest was a bitter one. The support obtained for canals, wagon roads, and railroads in each case turned on the question as to which port the project would benefit. As a result of the opening of the railroad from Charleston to Hamburg the trade of Charleston greatly increased, while that of Savannah suffered a corresponding decline. Most of the transportation enterprise in this part of the South grew out of the contest between Savannah on the one hand and Charleston and Augusta on the other for the trade of the central Georgia cotton belt. The Georgia railroad company was chartered to build a road westward from Augusta to the middle of the state, and a rival was projected between Savannah and Macon.¹ Both of these roads were finally built. When, however, the construction of the Southwestern railroad of Georgia from Macon to the Chattahoochee river was undertaken, Savannah, with an eye to larger trade advantage, took a generous amount of stock, but the people of Macon, fearful that their trade would be lessened instead of increased by the proposed road, gave little support to the project.² The extension of Georgia railroads encroached upon territory tributary to Mobile, and it was mainly for the purpose of strengthening that city in the contest with Savannah and Charleston on the east and New Orleans on the west that the construction of the Mobile and Ohio railroad was undertaken.³

To the North similar struggles for commercial supremacy

¹ Phillips, Hist. of transportation in the eastern cotton belt, 254.

² Reprint of annual reports, 1849-69.

³ Phillips, Early railroads in Ala., *Gulf States Hist. Mag.*, I, 34.

were waging between Philadelphia and New York, and New York and Boston. Before the contemporaneous events of the embargo and non-intercourse acts and the introduction of the steamboat on the Hudson, the importance of New York had been slight. Albert Gallatin, going to Manhattan

**Philadelphia
and New York**

with a view to locating there, was not impressed with its future. He described it as local in its interests, and dominated by a few of the great land-holding families who were constantly fighting for social and political supremacy. Intermediate between Boston and Philadelphia, with no West behind it, and no way open to command the trade of the lake region, there seemed little to indicate the future metropolis. But conditions changed; the crushing of the shipbuilding and foreign trading interests, the sudden development of the argicultural regions of central New York, the settlement of the lake country, the opening of the Hudson by steam navigation, and later the building of the Erie canal, marked New York as a city which could control the ocean commerce of the continent.

Even before the Erie canal was completed, merchants of Philadelphia had found it more profitable to send goods by water to Albany and thence to Pittsburgh than to transport them by wagon across the Alleghanies. The successful

**Advantage of
the Mohawk
route**

financing of the Erie canal threw the conservative citizens of the Quaker city into a state of feverish excitement.¹ Every private and political interest which centred in this city conspired to reduce the natural trade advantage of New York to a minimum, and to force upon Philadelphians a struggle to retain the supremacy which they had so long enjoyed.

The great public works were undertaken to give to Philadelphia control over the Ohio trade by way of Pittsburgh. The French Creek canal would give entrance to Lake Erie,

¹ Turner, *Rise of the new West*, 32-9.

the Susquehanna canal would reach Sunbury, while the Sunbury and Erie would give the double advantage of access to the mineral belt and a short cut to the Great Lakes. At the same time the Chesapeake and Delaware canal would develop much of the New Jersey and eastern Pennsylvania traffic.

For the purpose of thwarting the effort of New York to enter her territory, Philadelphia resorted to the same tactics as had been so successfully used against Baltimore. Responding to Philadelphia influences, the legislature of Pennsylvania in 1852 passed a law providing for a uniform gauge throughout the state for all railroads thereafter to be constructed, the same to be uniform with that of the state system.¹

Commenting upon the wisdom of such a measure a writer in the Philadelphia North American said: "The section [of the law], it will be seen, keeps the New York influence outside of the state lines and harmonizes the railroads of Pennsylvania into one complete system. It avoids transshipments within the state, and keeps our grasping neighbor within her own bounds; and, by binding together the interests of all counties, will foster everywhere a good feeling for Philadelphia. . . Pennsylvania soil should not be used as a highway leading to and from her rival and competitor — it should be ramified by railroads uniting in Philadelphia. . . New York has long indulged in the hope and expectation of running across eastern and northern Pennsylvania on the north with the six-foot gauge of track, and on the east with the New Jersey track of four feet ten inches gauge, and so, while running through the state, secure its local interior trade to the loss and injury of Philadelphia. But this cunning game has been effectually checked in the adoption of the gauge law above alluded to."²

¹ L. 1852, no. 36.

² *Amer. Railroad Jour.*, XXV, 160.

For a large part of the legislation and for the financing of transportation in northern Pennsylvania, the New York competition with Philadelphia was responsible. Philadelphia was to a large degree successful in protecting its mineral fields, but just as it was able to wrest commercial control over the Susquehanna from Baltimore, so New York by utilizing its natural advantage was able to take from Philadelphia a large part of the commerce of the great West. As a result Philadelphia developed into an industrial centre, and became the staunch advocate of a protective tariff, while New York as the commercial metropolis was one of the chief patrons of the commercial idea.

New York's newly attained advantage stirred up another rival, which until the war of 1812 had held a commanding commercial position. Boston, the centre of shipbuilding interests and foreign trade, stricken as it was by the triple calamity of embargo, blockade, and protective tariff, was forced over to new lines of investment. After 1816 its activities were made to depend upon manufacture and internal commerce. A canal to Albany appealed to the imagination, but not to the practical sense of the Yankee. The first move in this contest for the trade of the West was the construction of the railroad to Albany, which connected not only with the Erie canal but with the westward moving line of railroads, which was eventually to become the New York Central. So eager were Boston people for an all-rail route to Buffalo that meetings were held in their city in 1840 for the purpose of raising money for the construction of the Attica and Buffalo railroad.¹ With the opening of the Tonawanda railroad in 1843, the communication with the lakes was complete.

For a time, the effect of prospective railroad competition upon New York was apparently not appreciated in that city, where so much security was felt in the possession of the

¹ *Niles*, LIX., 86.

matchless "Grand canal," and the promoters of the New York and Erie railroad, starting in 1831 with the primary purpose of opening up the trade of the isolated valleys of the southern tier of counties, were unable to attract sufficient support until they could point out the necessity for a railroad directly tributary to the city of New York as the one means of preserving its commercial supremacy.¹ The effect of their argument was at once shown in the refusal of New York capitalists to subscribe to the stock in the Western railroad of Massachusetts, though before that time a great deal of the capital of the metropolis had found its way into New England railroad ventures.² New York was now beginning to see that the completion of that road to Albany would make the entire canal system of the state tributary to Boston. After the completion of the Buffalo connection, Massachusetts at once became increasingly prosperous, and the progress of New York was checked. Statements were published to show that the valuation of New York real estate had fallen off with the opening of the Western railroad; and an agitation was begun which resulted in the building of the railroad from New York to Albany.³ Not only did Boston reach out toward the West through Albany and Buffalo, but through Ogdensburg and the Welland canal a trade route was opened which was free from the oppressive canal tolls which were exacted upon the railroad between Albany and Buffalo.

In a smaller way this struggle for participation in the trade advantage accompanying the introduction of the railroad was carried on among the trade centres throughout the country. When in 1826 the plans for the proposed Boston and Hudson river canal were presented, the commissioners

¹ Mott, *Between the ocean and the lakes*, 45; Bloomfield, *Influence of internal improvements on the growth of commercial cities*, *Hunt*, XIII, 261.

² Bliss, *Hist. memoir of the Western railroad*, 28.

³ Grant, *Hudson River railroad*, 10-9.

feared that if a southern route through Springfield should be adopted, trade might be lost to Hartford;¹ for with the introduction of steamboats upon the Connecticut, Boston's trade with the valley towns had greatly fallen off. By the time the railroad had been constructed as far as Worcester, sentiment in Boston was divided over its westward extension,² and Worcester was opposed to the building of the road beyond that city because of the fear of becoming a mere way station.³ Connecticut incorporated the Worcester and Hartford railroad company, and Massachusetts also was asked to grant a charter.⁴ The matter resolved itself into a struggle for financial support, which resulted to the advantage of the Western railroad through Springfield. Another instance of the intertown rivalry in the Connecticut valley was the contest between Amherst and Northampton over the question as to whether the east or west bank of the river should have the road which was projected along the Connecticut. Northampton had the larger financial backing, as a result of which the Vermont and Massachusetts road was built to favor that town.

Between Troy and Albany there had been open hostility from before the beginning of the nineteenth century, but with the opening of the Erie canal the struggle increased in intensity. To prevent Albany from going to decay on account of the superior transportation facilities of Troy, the Mohawk and Hudson railroad was built.⁵ On account of their intense rivalry, neither city had been able to obtain legislative authority to bridge the Hudson, but in a bill for the incorporation of the Rensselaer and Saratoga railroad,

¹ Report on the routes of canals, 60.

² *Springfield Gazette*, August 5, 1835.

³ Green, *Springfield*, 416.

⁴ Bliss, 25-6.

⁵ Munsell, *Mohawk and Hudson railroad*, 6-7.

a clause was introduced providing that a bridge might be built between any of the places named in the charter. Before the danger to Albany was recognized, the bill became a law. Then followed a series of petty retaliatory acts. Albany attempted to draw the trade of northern New York by means of a branch railroad running from

**Troy and
Albany**

Schenectady, the terminus of the Mohawk and Hudson, to Saratoga; but Troy maintained its position through the construction of the Rensselaer and Saratoga. When the rival railroads met at Saratoga, the Schenectady and Saratoga refused to exchange either passengers or freight. The merchants of Troy thereupon bought control of the rival road. Troy then sought a western outlet by means of an eastward extension of the Utica and Schenectady railroad, but failing in this, through the opposition of Albany capitalists, built the Schenectady and Troy railroad.¹ When the charter of the New York and Albany railroad was granted, it provided that the road should be extended through Albany to Troy, and a track was laid between the two cities; but Albany obtained additional legislation, providing that before the road should be operated, \$250,000 in addition to the amount already disbursed should be expended upon that part of the road south of Albany. This delayed the opening of the road for several years.

In the West intercity rivalry was quite as marked. The lake ports were constantly striving for trade advantage, and this spirit was the most fruitful resource of the promoter.

**Galena and
Chicago**

It is a fact of peculiar interest that Galena was once a rival of Chicago. Before the railroad became a factor in internal development, Galena had the double advantage of being supported by a large mineral industry and of having the Mississippi for an outlet. It

¹ Powell, Two experiments in public ownership of steam railroads, *Quar. Jour. of Econ.*, XXIII, 137-50.

is said that when the incorporators were deciding upon a name for the Galena and Chicago Union, objection was raised by some of the Chicagoans to giving Galena the preference in the title. To this it was answered that Galena was then and probably always would be the larger city, and the name was allowed to stand as proposed. The building of this road, however, was one of the chief means by which Chicago gained its advantage.

South of Galena were the valley towns, each seeking to establish its advantage. Nashville, Chattanooga, Knoxville, and other towns of the interior became centres of promotion and capitalization of enterprise which would bring trade to their own people. On the Ohio, Cincinnati and Louisville were prominent rivals. In the early steamboat days Cincinnati was an important river port, but with the

Cincinnati and Louisville building of railroads in the West its trade had slowly fallen off. Upon the completion of the Louisville and Nashville railroad in 1859, the loss of trade was so great as to call for action. As Ohio's constitution prohibits all forms of corporation subsidy by state or municipality, an effort was made to raise by popular subscription a cash bonus which would serve the purpose within the law. This measure failed, as did a similar effort in 1868. A proposition was then made for the direct construction of a railroad to Chattanooga upon municipal credit. An enabling act was obtained from the legislature in 1869 and after its validity had been determined by the courts, contracts were let for the construction of the Cincinnati Southern in 1874. Work was carried on under the supervision of a board of trustees acting for the city, and in 1880 the line was opened for traffic.¹

In all these intercity contests for trade advantage, it was a small minority of aggressive merchants, either individually or coöperating through trade organizations, who bore the greatest

¹ Hollander, Cincinnati Southern railway. (1894.)

financial burdens, and organized and executed campaigns for the furtherance of their plans. When John Stevens appeared in Philadelphia as applicant for the support of his plans, it was only before the merchant class that he obtained a hearing.¹ While the Massachusetts legislature was delaying over the manner in which the construction of the several railroads projected out of Boston should be carried out, the business men of the city offered to assume the responsibility of the work.² It was only natural that such should be the case. To the merchant, money put into railroad stock was an indirect investment in his own business, to be returned with increase in the profits of future trade; but to the manufacturer there could be no appeal more urgent than the needs of his factory. And the Southern planter looked forward to a steadily increasing demand for cotton, which called for a reinvestment of his small cash surplus in additional slaves and lands.

¹ McMaster, United States, V, 139.

² Bliss, 19.

CHAPTER VIII

PROMOTION OF PRIVATE COMPANIES

WHEN a man with his own capital provides his own equipment, or devises some method for conducting his own business with greater economy and profit, this is considered a function of management. If, however, he addresses himself to a constituency and seeks to enlist the capital of others in a project from which some advantage is to be gained, he is regarded as a promoter. Promotion is based on the recognition of the economic advantage inherent in an industrial situation, and the opportunity for capitalizing this advantage. The promoter is one who, recognizing this advantage, procures or paves the way to the procuring of the capital or equipment necessary to make it available. As the term is usually employed, it suggests a person who gives his time and attention to obtaining control over properties, and who organizes and capitalizes some new method of operating the same. The promoter, as such, must from necessity be an enthusiast. Having himself become convinced of extraordinary profits to be derived from the capitalization of the new venture or improved method, it remains for him to convince others. He must be a man of originality and unusual activity. The successful promoter as such recognizes no obstacle that may not be overcome. The mental attitude which fits him for promotion, however, very often unfits him for the management of capital or for the long continued control of large enterprises. Without sufficient funds of his own with which to provide the

The promoter

necessary equipment, the promoter must appeal to the man of capital (the investor).¹

The investor (the capitalist) is by nature and business training a conservative. It is this habit of mind which fits him for his business. As investor, his first inquiry is for security. Usually without originality or initiative, his function is that of a conservator of funds. His success as capitalist depends on his ability to protect his original capital, and to increase it through the contractual claim which he obtains on the income of the prospective enterprise to which his capital is contributed. Though eminently conservative, so far as the protection of capital is concerned, it is the desire for enhancing this capital through increased income that makes for progress, and brings the investor into sympathy with the promoter. The investor's eye being ever turned toward opportunity, he is constantly in search of opportunity for capital employment, and for contracts through which he can obtain larger investment returns. The man of conservative judgment (the investor) thus comes into financial relations with the enthusiast (the promoter), the contract of investment establishing the basis for the division of the profits to be derived from the organization and capitalization of the economic advantage which is made the subject of the promoter's energy. The promoter presents his project — his newly discovered business opportunity — to the investor; he himself is convinced that it offers an extraordinary return to capital after providing a profit for promotion, and he devotes himself assiduously to convincing the capitalist that he can enhance his income by furnishing the funds necessary for control, reorganization, or equipment.

¹ For definitions from legal cases see Alger, *Treatise on the law in relation to promoters*, 1-3.

SPECULATION AND GAMBLING AS FACTORS IN CAPITALIZATION

Failing to obtain a hearing with the capitalist, or being unable by direct appeal to induce the investor to enter into contracts favorable to the promoter, application may be made to the speculator. If the proposition assembled and controlled by the promoter will not stand the test of critical investment scrutiny, if it is so unusual that it does not permit the conservative to apply the actuarial test of experience, or if it is so local in its character as not to appeal to the larger investment market, the promoter may seek to capitalize his opportunity through direct or indirect appeal to the speculative imagination of the public. In this relation, speculation should be clearly differentiated from investment.

Speculation is a capital venture which relies upon chance for return. Investment is a capital venture which is entered upon as the result of calculative judgment. In principle, speculation is gambling, the difference being a matter of law. The gambler or the speculator places a wager on the happening of one or more events, over which he has little or no control. He ventures a relatively small amount, and on the happening of the event which is made the subject of the hazard, he is entitled to a much larger return. In case the stipulated event does not happen according to the terms of the agreement, the speculator or gambler usually forfeits all right to the capital ventured, *i.e.*, he loses his margin or wager. Speculation and gambling, as such, have little or no concern with the success or failure of an enterprise. This has not been the subject of speculation for the reason that it takes too long to determine the result. Results from speculation do not come from the profits of a particular industry in which the capital contributed by the speculator is to be engaged. The stock speculator, for example, may not know even the location of the railroad or other enterprise whose stock is

Speculation
differentiated
from invest-
ment

margined. The only facts before his mind are the market quotations of yesterday and to-day; his only hope is for a fluctuation in price which will determine the wager or contest in his favor.

Investment, on the other hand, carefully considers the industry, enterprise, or security to be purchased. The mind of the investor is ever turned to the economic or business advantage to be capitalized. With his capital the investor buys a right to share in the success of the venture. It is on his judgment as to the conditions which may be utilized to advantage that he is willing to accept responsibility for loss. The profits are to be derived from operation, or from the capitalization and sale of prospective profits. From the point of view of general welfare, speculation and gambling are vicious. They discourage individual industry and frugality; weaken the moral fibre of a community; encourage trustees and agents to misuse funds and properties in their keeping; and destroy conservative judgment. Success in speculation and gambling leads to lavish living and social waste; failure is followed by despondency and reduced individual efficiency. The exercise of investment judgment conserves industrial and social resources; the encouragement of speculative activities debauches and destroys.

In relation to the development of a particular industry, however, speculator and gambler may be used to advantage. Upon this ground was based the public justification of the lottery as a means of capitalization. When the capital of the country was small, when no institutions existed for the collection of funds large enough to capitalize enterprises of which the country stood in need, legislatures authorized the selling of chances which would entitle the successful drawer to a considerable fortune. This was the incentive offered to the individual to risk the amount to be paid for one or more tickets, the

The vicious
aspects of spec-
ulation

Justification of
the lottery

condition being that upon the completion of the subscriptions needed to legalize a drawing, a certain percentage would be set aside as prizes, the remainder to be used for purposes of capitalization.

The lottery has been defined as "the only method by which laziness and avarice — those opposite and contradictory emotions — can combine and satisfy each other."¹ This method played an important part in the early history of this country. Few communities were willing to tax themselves sufficiently to provide for needed works of public improvement. Resort was therefore had to drawing small funds from that improvident class which preferred to look to chance rather than to industry and saving for the accumulation of a fortune. By this method every kind of institution and improvement requiring extraordinary outlay was aided. Colleges, churches, municipal buildings, docks and wharves, roads, bridges, and many other enterprises were objects of this form of funding. The action of New York in this respect has already been mentioned. Pennsylvania in 1795 authorized the holding of a lottery to raise capital for bridging the Schuylkill at Easton. The Delaware and Schuylkill and the Schuylkill and Susquehanna companies, in 1795, were authorized to issue lottery tickets; and when their successor, the Union canal company, fell into financial straits in 1819, the state provided for the payment of interest on its bonds out of a fund to be derived from a lottery or series of lotteries. When a bridge was swept away, a lottery replaced it; a highway in need of ballast was thus repaired, or a lock in a canal was rebuilt. When in 1822 it became necessary to lower the bed of the canal at South Hadley Falls, Massachusetts authorized the company to raise \$20,000 for the purpose by means of a lottery. Instances of the sort might be multiplied.² It

¹ Weeden, *Econ. and soc. hist. of New England*, II, 692.

² Spofford, *Lotteries in American history*, *Amer. Hist. Assoc., Report*, 1892: 173-95; McMaster, *United States*, II, 23-4, III, 461; McMaster, *Old*

was only after there had been a considerable increase in wealth and population throughout the country that the lottery came to be regarded as against good morals.¹

By the lottery no assurance was given to contributors that the funds collected and allotted to the enterprise would be properly applied. The only guarantee was that a proper apportionment would be made. As a funding agency, therefore, it was in every way inferior to the corporation. In legal theory the corporation provided a trusteeship for subscription and collection of funds as well as a trusteeship for their proper application and use as capital after they have become the property of the company. There is a permanent relationship established between the contributor, or his assignee, and the officers and agents of the corporation. The contributors constitute the proprietors of the company. In legal contemplation, an appeal for corporate subscriptions is an appeal to conservative investment judgment.

Lack of restraint on transfers of stock subscriptions and stock holdings, however, has made the price of shares one of the most frequent and active subjects of speculation. Gambling on the price of shares has become an established business. Trading in shares has developed two classes of speculators, — professionals and outsiders. The professional is one who makes a business of operating in the market. The outsider is one who "takes a flier"; *i.e.*, takes an occasional chance. Orders are executed through brokers who may also be traders on their own account, and in such capacity operate as professionals. The net result of stock speculation is to cause large funds to be brought together in stock-trading centres.

standards of public morals, *Amer. Hist. Rev.*, XI, 523-4; Ross, History of lotteries in New York, *Mag. of Hist.* V, 94, et seq.; Stiness, A century of lotteries in Rhode Island, R. I., *Hist. Tracts* (2 ser.) no. 3.

¹ Weeden, II, 528, 691-3, 737.

These funds consist of: (1) the cumulation of margins in the hands of brokers; (2) the cumulation of book profits, or drawing accounts in the hands of brokers; (3) the cumulation of large call loan funds in banks which are used in support of speculative transactions; (4) the cumulation of large capital in the hands of brokers as the result of taking commissions and interest, and (5) the cumulation of large capital in the hands of professionals, the result of profits taken from outsiders. The gross amount of funds which have been brought together in a city like New York will not fall short of a thousand million dollars. The extent to which transfers are speculative has been estimated at from ninety to ninety-five per cent of all the transactions on the exchange. To this is to be added the large funds brought together in other forms of speculative trading. Indirectly stock gambling has aided in the capitalization of large corporate enterprises by assisting in bringing together at trading centres those capital funds which may be utilized for purposes of flotation and investment. But speculation also contributes directly to the capitalization of individual enterprise. Corporate issues in new promotions may be entirely taken by stock market speculators, thus giving the corporation the funds desired, the speculator accepting the risk of selling them at a higher price; or they may be entirely disposed of outside a stock market by direct appeal to a speculating public through a published prospectus. Untold millions of dollars have thus been obtained for purposes that would not warrant investment consideration.

While large funds have been brought together through speculation in the stock market, the practice at all times has been fraught with great danger to private credit and national prosperity. For the personal profit of promoters, stocks and bonds have been offered and sold to a venturesome or confiding public by irresponsible representation and false statement, by fraud and deceit; and this practice has con-

tinued for nearly a century without serious interference of law. In periods of great activity, the agencies of appeal and speculative sale have been well organized and well supported in the financial centres; in many instances large stock exchange houses operating through banks and other financial institutions whose names carry the weight of authority and highest respect have been the means through which the popular purse has been reached. At such times, the financing of new projects has been devoid of that balance and control which comes through the interposition of critical investment judgment. Being deprived of the poise of investment considerations, even the best of transportation opportunities after being capitalized and equipped have frequently been crippled, and later the courts have been employed to enforce contracts, the effect of which has been to wrest the property from those who furnished the means for development. Unfortunately for our material welfare, under our lax corporation laws the promoter has been free to win support for his projects by almost any method, fair or foul, which has seemed adapted to his ends.

TYPES OF PROMOTION

A former railroad president has thus described the methods of this class of railroad promoters, and others who with equal license have been permitted to abuse the confidence of investors: "Their plan was to procure the most favorable charters from the States or the Government, to obtain large concession in lands along the line, then organize a company, issue as much stock as they thought the public would take, obtain from cities and towns as large subsidies as possible in money and promises; then make contracts with themselves by which they received all the lands, subsidies, bonds and stock, for constructing the railway. They constructed it cheaply as

possible; they sold the lands for the best price obtainable; sold the bonds and stock to the public; and then marched on to take other contracts and conquer other lands. When the day of reckoning came, as it was bound to, the public found themselves the owners of bonds upon which the interest could not be paid; the communities found themselves with a poor railway in which they had no direct pecuniary interest; they saw the contractors with enormous fortunes, and they concluded that they had been cheated and robbed.”¹

This picture is true of many aspects of railway promotion, but it is not typical of railroad development as a whole. Notwithstanding the fact that lines have been built by promoters to sell, that others have been built by officers and directors for stock-jobbing purposes, and that still others have been built for the profit arising from construction, a larger number have been promoted by men who afterwards remained as the managers of the lines they had built, or as investors who, from the beginning, exercised conservative judgment in control. Reflecting his contact with promoters of the conservative class, Wellington said: “Railroads are not undertaken unless they are expected to be profitable, not to the general public, nor to other parties in the near or distant future, nor to those who lend money on them, *but to those who at first control the enterprise*. If the means in hand be not sufficient for the projectors to complete the road for operation and to control the operation, afterwards, the result to them is usually complete loss.”² In most instances, it may be said, that those who have contributed the funds required for construction and equipment have been moved either by a well considered business judgment that the stock and bonds of the company would yield a safe and profitable return, or the

¹ Ingalls, The past, present and future of American railways, Purdue University, Lectures in railway engineering and allied subjects, 71-2.

² Wellington, Economic theory of the location of railways, 15.

subscription has been secondary to the development of a system of transportation needed to give wider scope and larger opportunity to some other enterprise to which the investor has devoted his capital. In either case it was a well considered business project. The only circumstance in which business judgment is not exercised is where appeals are made to a speculative constituency. To quote further from the same authority: "The general question of whether or not build the line at all is one of finance and business judgment alone, to be settled by a more or less visionary estimate of the available capital for construction, the probable gross and net receipts, and the resulting direct and indirect advantages to the projectors."¹

THE ECONOMIC BASIS FOR THE MORALITY OF PROMOTION

Neither of the opposing views above quoted gives an adequate hypothesis for the interpretation of historic facts, or the analysis of financial methods developed in the promotion of railroads. The conclusions are based on abstract concepts of morality. From this viewpoint the use and disuse of the lottery may not be understood; neither may practices relating to state transportation enterprise be justified. In fact, the moral code itself can be accounted for only when it is

Moral principles a result of social demands considered in the light of social necessity and economic advantage. The method as well as the morality which has been incident to the promotion and capitalization of private transportation companies finds a coördinating principle in social necessity, and in the economic advantages to be gained through this method. The powers granted to persons to organize private corporations, and the powers granted to railroad corporations when organized, proceeded from considerations of community welfare. The basis for private corporate legislation was as truly social and economic as

¹ Wellington, *Economic theory of the location of railways*, 13.

were authorizations to operate lotteries, and grants of appropriations for state works. The primary difference was that under these private corporate laws both organization and capitalization were made to depend on private initiative. The promoter performed the public service of initiator. At the time of promotion he stood before the public as a great beneficial agent for bringing together the men and the means necessary to provide the people with a needed improvement. What we now call dishonesty on the part of the promoter was at the time publicly encouraged, in many instances legalized, at all times winked at, as a condition essential to the accomplishment of a desired end.

In the initial stages of industrial development the efforts of the promoter were applauded by the community to be served. While at all times the economic advantage of the proposed improvement was kept before the public, this was unnecessary, except so far as was helpful in winning favorable consideration from the investor as to the prospective earning power of the enterprise. The real subject for the exercise of the promoter's ingenuity and the display of his energy has been based upon the investment principle that *one with capital will not withdraw it from a field in which it is already profitably occupied and which is well understood, unless some bonus or extraordinary inducement is offered.* The history of the development of financial method

Corporate practices developed in harmony with community needs

in promotion finds in this principle its controlling factor. The resourcefulness of the promoter of railroads is to be found in his methods of assembling or bringing under control a form of bonus which might be held out to induce capital to invest. In his effort he has had two distinct ends in view: the necessary elements of successful appeal to those outside of the range of the improvement itself, to whom application must be made for funds, and a residue which may be taken over by the promoter himself as compensation

for his labor and talent in bringing together the elements necessary to success. The highest success required that he be fully alive to all the possibilities; and these were almost unlimited. With population stretching out over a new and undeveloped continent and seeking to possess the land, with resources of incalculable value offered by the government to any and all who might have the initiative to break away from the old associations and settle upon the new land; with such a vast bonus offered to settlement but with no means provided by the government for converting these resources into present means of individual comfort and industrial welfare, the promoter would indeed have been dead to opportunity if he had not insisted on a liberal reward for supplying the great need, — the railroad.

Perhaps the methods of private financing may be better appreciated if the public aspects of the situation are again briefly stated. Immediately after the war of independence the public domain belonged to the states. In the interest of common welfare a large part of this was ceded to the national government. With the adoption of the federal constitution the most productive of the revenue powers were also surrendered by the states. With all this wealth of resource and revenue power, the federal government delayed undertaking transportation development on a scale commensurate with the growing demands of the people until the states found themselves able to sell their credit abroad. This placed the states in a position of political ascendancy, and the federal government was reduced to a position of secondary importance in the life of the people. With nothing to rely upon in support of their credit but direct taxation after the financial relapses following the panics of 1837 and 1847, the burden of direct taxation became so heavy that the state electorates were glad to shift the burden of debt to other quarters, but not to the national government. Sectional conflict precluded

favorable consideration of the taking over of state works and the assumption of state debts by the only governmental agency capable of financing them. For the same reasons the larger reserve powers of the federal government were not called into action in support of added facilities for interstate commerce; on the contrary these powers were repressed. The country was divided by economic strife; each section in turn seeking to minimize the powers granted under the federal constitution when they were used against it. The need for central regulation and control was not felt. Public business was not taken seriously. The demand of the time was for uninterrupted and uncontrolled private ownership of the most important of our public service enterprises.

What had already been established as a policy in giving away the public domain to persons who would "settle" was extended to the states. Time and again, organized effort was made to have the public lands re-ceded to the states. Large tracts were voted by congress to be held in trust by the states as a bonus to private corporations, which would undertake internal improvements. To the railroad promoter was offered not only a share of the newly acquired gifts by the government to the settler, but also large tracts of land and valuable resources which were ceded to the states for this very purpose. This was not all; although the states

**A part of the
general plan of
territorial
spoliation**

themselves had been crippled from the start on account of their limited revenue powers, and had proven their inability to support the large volumes of credit issued for the direct construction of state works, most of the cities and other political divisions of the state still had their credit unimpaired. With the imperative demand for better transportation facilities, with the general government barred from such undertakings by warring political sentiment, with all avenues closed to effort except through private corporate organization, the same individual self-interest which held out private estates

and the public domain as a bonus made available the combined resources of the community in the form of subscriptions and loans by municipalities. The inducement to promotive effort was one of personal gain instead of appeal to patriotic endeavor. And this inducement was limited only by the ingenuity of the promoter in converting the private and public estate to his own use.

Under such conditions no other result might be expected than that the promoter of the railroad would use every known device to bring influence to bear upon the private beneficiaries of the government,—“the settlers,” who had received farms and forests and valuable mineral lands for the asking, on officers entrusted with incurring public obligations in local communities, on executives who were made trustees for the distribution of land bonuses held by states, and on legislators who made the laws under which the public domain was disposed of to enable them to enhance the profits. Under such circumstances we have not far to look for the cause of what we now call political corruption. That intense rivalry for favors should exist, that, for selfish consideration, neighbor should be used to decoy neighbor to sign deeds and mortgages, that city and state officials should forget their trusts, that legislators would abuse discretion, that companies were organized for the single purpose of converting these liberal bonuses to private use, that at times railroads were planned and constructed through territory where there was no transportation demand, that spurious argument was used for the opening up of new territory to settlement while there were still large tracts undeveloped within easy reach of existing lines but in territory where bonuses were no longer available, — these results followed as a natural consequence.

So, too, may we accept as a logical sequence, practices such as the calculation of revenue not realized, the impairment of investment judgment, the collapse of private fortunes

The grafter a part of the system of morality

and the impairment of the capital of institutions which had been invested in this growth of securities with which the market was flooded. Under such circumstances it should not be a matter of surprise that those who were able to obtain control over capital resources should divert them to private account through syndicates and intermediaries, and leave the public and the investor with a poorly equipped instrument of trade. All this was a necessary part of a system of promotion fostered by society in which every man, woman, and child felt that he was a partner and held a subsidized interest.

The new moral code

It was only after the distribution of the spoils had been made, when each individual citizen had capitalized whatever advantage he had gained, when a large majority of persons residing within a given territory was required to produce in order to prosper, when the individual citizen no longer had an interest in the bonuses of government, when he no longer felt that he was being benefited by practices which we now condemn, that there began to be a moral uprising against the corporation, the officer, or the corporate trustee, who, under the contracts which represented his share in the division of the spoils of territorial conquest, continued to profit from the system. Then began the parting of the ways. The agriculturalist, the manufacturer, and the miner,

A result of new conditions

who would have better and cheaper facilities, came into industrial and commercial rivalry with each other and with the transportation company. There was a demand for a readjustment; and in seeking this readjustment the public now complained because the corporation continued the very methods of protecting its interests which it was induced by bonus and popular demand to employ from the hour of its birth. The outcry against our Ames, our Stanfords, and our Huntingtons, was not heard until after the enterprises for which subsidies were obtained had been capitalized; the complaint against

the legislative lobby was not entered until it had been decades in use as the regular instrument of obtaining legislative action. The new morality of to-day is the product of new economic and social conditions, which require that the government become the effective agency representing general welfare, and that this agency be vigorously employed to guard the public against the exercises of the special privileges and private monopolies created under a régime of private spoliation of a new continent, the title to which rested in the general government. The promoter of the railroad of yesterday was the enterprising citizen; he was the man who, accepting conditions as they were, made the most of them; and whatever conclusion may be drawn with reference to his morality when measured by new standards, it must be said that he did much to organize the forces which have given to America the best equipped transportation service in the world.)

CHAPTER IX

RECONNAISSANCE AND SURVEYS

WHILE the matter of location is a well-understood factor in promotion and capitalization, and while the essentials as to method are well understood, concrete historical material on this subject is hard to find. This is due in part to the fact that the particulars of a survey were usually considered as private in character, and in part to the fact that the observations of the engineers were made in the form of pencil notes which were seldom published.

Although, logically, the location of a proposed road would be the first step, this has not always been the case. When the improvement was the result of a general condition which forced the need upon the attention of the community, sometimes the first move was made by the people of the community itself. Such action was frequently taken at a public meeting called by interested citizens for the purpose or by a local board of trade or civic organization. This method is illustrated on a national scale in the marking out of the several prospective routes for railroads to the Pacific coast. Here national interest was intensified by sectional feeling, and though from public necessity one road was all that would have suggested national support, three different routes were fairly well defined in petitions and debates urging congressional aid.

Not infrequently a person having influence with the party in power, or who had proved a successful lobbyist, obtained a valuable charter from a legislature before a route has been even roughly located. In fact, numerous charters were

granted with authority so broad as to permit almost any kind of business to be conducted. Some of these came to naught but many were sold, as was the old Pennsylvania charter under which the famous "Credit Mobilier" was organized. But when the project was promoted privately, the first step was usually in the nature of a survey or viewing

First steps of the prospective route. This may not have
taken in pro- been more than a ride through the territory.
motion

In a prairie country it might have little or no regard for topographical features, the first view having been largely to determine the relative advantage to the promoters of possible routes according to the relative amount of local financial support offered, or to make representations as to possible future developments. If the stories of old residents of the Middle West may be believed, the preliminary survey was often conducted from the back of a horse or from the seat of a buggy. Even in a territory where the way was of necessity carefully chosen in order that cost of construction might not be prohibitive, the first plans were often formulated without the use of instruments. It has been the common practice to obtain a charter and to effect the organization of a corporation before attempting a detailed survey, but now the engineer is employed to ascertain the feasibility of a route, and the application for a charter is based largely upon his report.

From what has been said it appears that surveys are of three kinds. First comes the superficial examination of the territory "with an eye to the country." This is called a "reconnaissance." Usually one or both terminals are definitely fixed at the outset by physical or commercial conditions, so that the range of choice is limited to the determination of the exact region to be traversed. Following the reconnaissance comes the preliminary
Surveys survey, which is an instrumental examination of several possible routes for the purpose of obtaining data

upon which a definite selection can be based. In some cases the formation of the country dictates the location of the route, but extensive surveys are usually required, and final choice is made only after minute consideration of all phases of the problem. Often several preliminary surveys are necessary. After approximate location is determined, the locating survey is made, to fix the centre line for the actual work of construction, and to obtain details which may serve as the basis of estimates for contracts.

The problem of location is so to place a line that the largest traffic may be handled at least expense. Inclinations should be in the direction of the heaviest traffic, and the "ruling" grade should be made as low as possible.¹ It is necessary

**The problem
of location**

to select the most direct course and easiest gradients consistent with local physical conditions. Soils must be studied from the point of view of drainage, ease in excavation, and availability as ballast. Cuts and fills must so far as possible be placed so that the haul of earth will be minimized. Records of rainfall extending over periods of years are usually consulted. In some instances engineers have been kept stationed on the route through several seasons in order to collect data upon which might be determined the height and length of a bridge, or whether a fill might not be substituted for a bridge. Liability to floods, snow-drifts, land-slides, and even exposure to winds, must be considered.

It is a problem of distance, curvature, and gradients in their relation to first and ultimate costs. Usually several

¹ "Not only must the engineer prepare a general description, a profile, of the different routes, but must determine the approximate cost of the various structures, embankments, cuts, tunnels, bridges, and culverts; the amount and quality of the earth that must be removed, and the distance it must be moved; the cost of track and other supplies, including ballast; and, finally, the maximum load that may be hauled in either direction over the whole line and over its different sections." — Kirkman, *Financing, constructing and maintaining*, 157-8.

modifying factors are present. Sometimes there has been the necessity of getting the track on the ground in order to keep out prospective rivals. Much construction has been attempted on insufficient capital, and emphasis has necessarily been placed upon low first cost rather than upon high operative efficiency. The result in each case has been the same, — loss to security holders through inability to meet the operating costs of rival lines, or through the necessity for large additional sums put into the property in the form of betterments. In some cases the route selected has

Elements to be considered been that which has best served the private fortunes of engineers or directors; in others, the route has been diverted from its proper course to reach localities which have voted public aid. In a new country, in the absence of some such considerations, the straightest and cheapest line consistent with gradients is the one chosen, for towns will follow as a matter of course. But in a settled locality where the position of towns has already been fixed by economic conditions, it is necessary to reach them at the easiest gradients consistent with the face of the country and occupation by previously constructed lines, even if the distance is increased by curves. In a mountain country the problem is how to reach a destination regardless of everything except grade.

As typical of the older methods, the steps taken in the organization of the Mobile and Ohio may be noted. The project of opening railroad communication between the Gulf and the Ohio river was first considered early in 1847 at a public meeting in Mobile, at which a sum sufficient to defray the expenses of a reconnaissance was raised, and
The old method an engineer chosen to examine the country along the route of the projected road. Charters were then obtained from the several states, and subscription books were opened in May, 1848. After twenty days it was found that 6317 shares had been taken by 699 subscribers. Organiza-

tion was then effected, and the board of directors engaged an engineer to lay out the route. They also sent delegates to seek aid from congress, but they were not successful. As the best means of spreading information and arousing public interest in the enterprise, two commissioners were appointed to visit the counties along the route and call public meetings, deliver addresses, and appoint local commissioners to receive subscriptions.¹

With the introduction of improved machinery for the construction of engineering works of great magnitude, and with the increasing emphasis upon low cost of operation, a marked change has been effected in the methods of railroad location. It is the modern practice to determine the maximum of gradient and curvature in the quiet of a board room, and instruct the engineer to find within these limits a practicable route between the chosen terminals. This places upon the engineering department the necessity of going over a much wider range of territory in order to lay out the best route, and so increases the number of surveys. It was in this manner that plans were drawn up for the Virginian railway, connecting the Pocahontas coal fields of West Virginia with tidewater at Norfolk. As a result the new line may be operated at much less cost than either of its competitors, the Norfolk and Western, and the Chesapeake and Ohio.

Modern practice also differs widely from former methods in the length of time taken to consider the problem of location of a new line. Instead of concentrating the energies of the engineering staff in a mad effort to reach a strategic point in the least possible time, the railroad projector of to-day begins construction only after the most exhaustive investigations have proved to his satisfaction (and to the satisfaction of the bankers who are financing the project)

¹ Proceedings of the first annual meeting of the Mobile and Ohio railroad. (1849.)

that a line has been found which is not only the best from
Operative ad- the operative standpoint, but which will com-
vantage of this mand traffic in sufficient quantities to insure
practice the commercial success of the undertaking. It
is said that an extension from Ogden to San Francisco was
determined upon by E. T. Jeffrey when he became presi-
dent of the Denver and Rio Grande in 1891; yet it was not
until thirteen years later that he was ready to announce the
plans for the construction of the Western Pacific. Within
that interval engineers went over the ground, searching out
a route which would not only attract the most traffic, but
which would handle it most economically. As a result the
new line has a maximum grade of one per cent, as compared
with the two and two tenths per cent upon the Central
Pacific, which was projected and built according to the
wasteful methods which characterized the early period of
railroad construction. Similarly, the St. Paul extension has
a maximum grade of one and eight tenths per cent, while
the Northern Pacific in the same general territory has a
maximum grade of two and four tenths per cent. What
this means in operative efficiency, in low maintenance charges,
and in greater revenue may be readily conceived.

CHAPTER X

LEGISLATIVE PROVISIONS AS AN ELEMENT IN PROMOTION AND CAPITALIZATION

AFTER determining the route and the territory to be served with transportation facilities, one of the most important financial considerations is the charter with provisions favorable to the enterprise. A railroad is a highway; it is made attractive to persons residing within a given territory by reason of the promise of increased facilities or increased economy offered for moving goods and persons from place to place; it is made attractive to those who would promote and capitalize the enterprise by reason of the inducement offered in the form of prospective financial return.

Being a public highway, the protection offered to the public as well as that given to investors must in large measure come through contract. This contract takes the form of a corporate charter. A charter is a formal grant by a state to persons associated for the purpose of exercising powers and enjoying privileges which they could not otherwise exercise or enjoy. Among the powers commonly conferred is the right of the group to enjoy corporate identity, the authority to exercise the right of eminent domain, to exert a monopoly control over all or a portion of the highways improved, to levy tolls, and to fix the charges for transportation. Among the privileges granted are limited liability, and corporate existence for a definite period or in perpetuity.

The grant of a charter is an act of sovereignty. In Great Britain this proceeds from the crown. By revolution the

American colonies established the principle that the people in their organized political capacity are sovereign. Constitutions are grants or charters given by the sovereign (the people) to certain persons designated therein to exercise powers of government. In the disposition of these governmental powers the legislature as the direct representative of the people, instead of the executive, is constituted the branch of government from which private corporate charters may be obtained.

To obtain a charter during the early period of railway promotion, it was only necessary to petition the legislature, setting forth the purpose of the proposed improvement, the public advantage to accrue, and the powers to be exercised. Favorable action by the legislature constituted a formal contract between the state and the parties in interest, joined

by offer and acceptance. On account of the opportunity for bribery and fraud which this system afforded, it became the common practice for the states by general enactment to prescribe the conditions which must be complied with before a certificate of incorporation would be granted. When under these provisions evidence is given that the conditions offered by the state have been complied with, the certificate is now issued as a matter of form. The powers and privileges contained in the general act are conferred by operation of law, and these may be exercised and enjoyed thereafter by the corporation to which a certificate is given in the same manner as if they had been conferred through a special grant.

With a few exceptions in the West, each state began with special or private acts of incorporation, and later adopted general laws. This change was brought about very slowly.

In most states useless duplication of legislative work was at first avoided by a system of abridgment. When enacted in this manner, a charter contained a few necessary local provisions with a

**Source of
charter powers**

**How charters
are obtained**

**Evolution of
charter acts**

clause including all the privileges granted to another specified corporation. The natural outcome of such a system (and of the popular outcry against the corruption associated with special privilege) was greater uniformity and, eventually, general acts of incorporation embodying the essential and common provisions of the older special charters. In some cases the first general laws contained only a brief outline of powers and privileges, leaving the chief features to be supplied by special charters. In many states, also, the granting of special charters was continued after general laws of incorporation had been enacted. This practice has in some instances been precluded by constitutional amendment.

While the states borrowed charter provisions from one another, and thus brought about a certain semblance of uniformity, selections were piecemeal, and the provisions which were copied were often those of minor importance, or unfitted to the needs of the borrowing state. Few states profited from the experience of others, and in general the history of acts of incorporation in the different states has been essentially similar. "Each state—excepting a few in the West—had its crops of railway charters," says Dr. B. H. Meyer, "and as the promoters moved westward from the Atlantic towards the Pacific, the charters were generally more loosely constructed through the omission of the more detailed, explicit and often restrictive sections."¹ In New York until 1848 every railroad charter was a special concession. The constitution of 1846 required the legislature to pass general railroad laws under which corporations should be formed, and a general law was therefore passed in 1848 and again in 1850.² This put an end to the organization of corporations under special charters, except for municipal purposes

**Influence of
laws of one
state on an-
other**

¹ Meyer, *Railway charters*, Amer. Econ. Assoc. Publications (3 ser.) I. 232-3.

² L. 1850, c. 140.

and in cases where the objects desired make special legislation imperative.

Under the system of special charters legislative corruption flourished; for applicants for valuable privileges were in too many instances willing to pay money for the objects of their desire. It could be said of many of the early railroad promoters as was said by Wendell Phillips of one of the most prominent ones, that "as he trailed his garments across the country, the members of twenty legislatures rustled like dry leaves in a winter's wind." ¹ As early as 1857 a Texas governor said: "It is much to be regretted that we did not at first adopt the principle of granting to all railroad companies similar powers and privileges; if we had, there never would have been any inducement for besetting the legislative halls with applications for extraordinary favors." ² A governor of Massachusetts, in a message of 1872, after commenting upon the presence of a railroad lobby in the legislature as sufficient reason for the enactment of an adequate general law, continued: "First and last nearly four hundred railway charters have been granted in this state, or more than one to every five miles of railroad ever constructed within our limits. The Legislature of last year passed no less than fifty-three railway enactments, of which fourteen were acts for incorporation. The passage of one proper general law would have obviated the necessity for this and all similar special Legislation." ³ Similarly, in recommending a general incorporation law for railroads in Maine, the governor's message in 1874 condemned the special charter which had "involved not only the evils incident to ordinary special legislation, but also, at least in some other States, in cases where proposed roads were supposed to conflict with exist-

¹ Quoted in Col. Scott as a railroad manager, builder, and financier, 29.

² Message of E. M. Pease, Senate Journal, 1857: 30-1.

³ Address of William B. Washburn, 1872: 40.

ing railways, those fearfully demoralizing practices to which great corporations sometimes resort to defeat or promote legislative measures.”¹

By removing the principal cause, general laws have tended to do away with the evil of political favoritism and legislative corruption in obtaining charters; for not only are the privileges which are obtainable under general laws definite and applicable to all cases, but amendments may be obtained when the demand for them is general enough. Fortunately, however, the liberal charters which were granted under the old régime of special legislation have not been the source of embarrassment that they once threatened to become. Failure to fulfil the terms has in many cases worked forfeiture of the special privileges, and bankruptcy has offered opportunity to most states to rid themselves of special obligations by dictating the terms of reorganization.

While it may be true “that the laws of all the States taken together collectively do not contain all the provisions essential for a complete railway law of to-day,”² it is nevertheless possible to indicate powers and privileges which are typical, and which may be considered as essential to the organization, construction, and operation of a railroad; in other words, to outline the typical charter. Under the old charter grants, as a means of utilizing the names of reputable citizens in raising funds locally, a number of commissioners were named whose duty it was to receive subscriptions to capital. The introduction of a general law changed this practice. As subscription must be attended to before the articles of association are filed with the secretary of state, the reputable name is utilized to head the subscription list. The general powers and privileges do not appear in articles filed by incor-

¹ Address of Nelson Dingley, 1874: 36.

² Meyer, Railway charter, Amer. Econ. Assoc., *Publications* (3 ser.), I, 234-5.

porators, because these are contained in the law itself and in the constitution of the state. In other respects the provisions of charters and articles of association are similar. Each contains the name of the company, the names or number of directors; the amount of capital stock authorized; the size of shares, and the amount required upon each at the time of subscription; the maximum of assessment per share, together with the number of days' notice required; the manner of voting; the time within which construction must be commenced and completed; the connection with other lines; the building of branches and extensions; the route; the method of condemnation of private property; the amount of land and other property which may be held; the number of miles to be completed before beginning operations; the borrowing of money; the distribution of dividends; the liability of stockholders; the filing of annual reports; and the provisions as to the fixing of the rates upon passengers and freight.¹

"The greatest change brought about by the transition from special charters to incorporation under general laws," says Doctor Meyer, "consisted in uniformity. Almost infinite variety in charter provisions was common during the early period of special legislation. Under general laws, even when compliance therewith was not enforced or enforceable, a certain degree of uniformity was brought about from the very first."² As the first railways were regarded as improved highways, their charters in many cases conferred the right to collect toll for the use of the road, and an additional charge for conducting transportation when the equipment of the company was used. Thus the charter of the Boston and Providence gave the right to build a railroad which might

Elements
which are
common in
charters and
general laws

Provisions of
special interest
to capital

¹ Meyer, Railway legislation in the U. S., 53-4.

² Meyer, Railway regulation; Rep. Indus. Com. IX.

be used by any person who would comply with necessary regulations, and authorized the directors "to erect toll houses, establish gates, appoint toll gatherers and demand toll upon the road."¹ A step in advance was taken in the charter of the Maine, New Hampshire, and Massachusetts railroad, which gave the corporation the privilege of buying cars and locomotives for the transportation of passengers and freight.² The Baltimore and Ohio charter, however, although granted as early as 1827, conferred authority over the directors to levy on all goods "a mileage charge for toll and one for transportation,"³ and the fact that it preceded many charters which included the clause providing for state operation shows that the form of legal phrasing persisted after the idea of the railroad as an improved form of road had been generally abandoned.

It may safely be assumed, therefore, that the wording of early charters does not adequately reflect the contemporary idea regarding the operation of railroads. The presence of various saving and restrictive clauses in these acts shows, moreover, that legislators preferred to copy the provisions of English statutes rather than devise methods of their own to fit the case in hand. The charter of the Liverpool and Manchester contained a clause providing for a reduction in rates when the dividends should exceed a normal yield upon the investment, and this provision was included in many of the early American charters. Parliament also reserved in this charter the right to purchase the property upon specified terms after the expiration of a certain period, and similar provisions found their way into early charters in America.⁴

**Right to
operate**

**Maximum
rates for
operation**

¹ L. Mass., 1830, c. 4, 95.

² L. Me., 1831, c. 179.

³ L. Md., 1826-7, c. 123.

⁴ Adams, Railroad legislation, *Amer. Law Rev.*, II, 27-8.

Yet American experience had brought out needs for legislation which the English models were thought to supply. Although it was not allowed, the claim made in the Warren and Charles river bridge case¹ for an exclusive right to a franchise under a general long-term grant of toll made the states cautious about all charters, so that it was thought reasonable to limit income to ten per cent by reserving the right to reduce rates when that figure should be exceeded.

Limit of profits to percentage of capitalization The reservation of the right to state purchase, moreover, afforded an easy and convenient method of escape from final decision in the question of relative advantage of public and private ownership of railroads. But the Dartmouth college case,² which gave to corporate charters the standing of inviolable contracts, was alone responsible for a third limitation found in most American railroad charters reserving to the legislature the right to amend and repeal at pleasure.

When a turnpike company earned more tolls than it could distribute in the form of dividends, it still remained open to all who would pay for its use, but a railroad not only supplied a thoroughfare but transportation as well; and when profits became unduly large it was obviously to the advantage

Right to amend charter of the directors to discourage measures which would tend to create traffic and increase receipts. The Boston and Providence, Boston and

Worcester, and Western railroads earned sufficient to declare dividends up to the legal limit of ten per cent. In consequence, progress was opposed upon the Boston and Providence on the ground that charges might increase income and so attract hostile legislative action. The other two railroads, after thirty years of operation and a long succession of ten per cent dividends, found themselves with large surpluses awaiting transfer to stockholders. Because of

¹ Charles river bridge v. Warren bridge, 11 Peters, 419.

² Dartmouth college v. Woodward, 4 Wheaton, 518.

absence of competition, both roads became too conservative to provide necessary facilities for proper operation, so that a legislative committee found the management perfect from the standpoint of the investor but not sufficiently accommodating to the public. It was only in states like Massachusetts where stock dividends were forbidden that this condition could exist; for in default of such prohibition nothing could be easier than to increase the amount of shares by issue of stock dividends and so keep down the rate of cash dividends.

One of the sovereign powers which has been of advantage in the promotion and capitalization of the railroad is the right of expropriation, or eminent domain. This enables the private corporation to lay out a road from point to point as traffic demands suggest, and to condemn private property when the parties holding it will not sell on suitable terms. Conditions are now different from those existing at the time of the early application of the principle of eminent domain. English law once held property rights to be absolute, and considered it dangerous to allow an individual or even a public tribunal to judge when intrusion upon these rights was for the common good. In practice, however, Parliament found it necessary to take private property for public use on the ground that "the king has the better right." It did this by giving a full equivalent for the damages entailed, though the matter of compensation was held to be one of choice and not of obligation. In this country the people have "the better right," and lands held by governments are condemned exactly as if they were the property of individuals.¹

The underlying theory of law which permits the legislature to grant to the railroad corporation the right to exercise powers of eminent domain is that the railroad is a public

¹ Barkworth, Eminent domain, Mich. Pol. Sci. Assoc., *Publications*, I, 121-5.

highway, and that the railroad company is a creature of the people to construct and operate it for the public welfare. On this theory all states have conferred upon railroad corporations the right of eminent domain. Usually in condemnation proceedings it is alleged that an unsuccessful attempt has been made to agree with the owner on a price, and in some states it is required to state that the lands are necessary for the enterprise.¹ Only a few states have gone so far as to take proper measures to prevent needless

Practice in the United States duplication of lines of railroad by providing that before the right of eminent domain may be exercised, a state board or commission must be convinced that "public necessity and convenience" demand the construction of the road.² In New York it was provided that before the right of eminent domain might be exercised, evidence must be procured to the effect that the enterprise promised to be of public utility. Under this act (1848) it was also required that before a company might exercise the power of eminent domain it must obtain a special grant of authority from the legislature. The power of eminent domain is now generally regulated by constitutional and statute law, but it is available to public utility companies. In some instances the right of expropriation attaches not only to land, but to other forms of property. A Connecticut statute has gone so far as to authorize the condemnation by a corporation of the outstanding shares of a corporation of which it owns three-fourths of the capital stock.³

Many of the privileges granted to railroad corporations had an important bearing upon capitalization, among others being the right to enjoy franchises to the exclusion of all others. Any franchise which gives to a company the use

¹ Baldwin, American railroad law, 81.

² Whitten, Trend of legislation in the U. S., N. Y. State Library, *Bulletin*, "Legislation," XII, 419.

³ L. 1895, c. 232.

of a highway is in the nature of a monopoly, but some early charters in express terms gave immunity from competition. This was among the earliest privileges sought from state legislators. As has been already shown, when Livingston and Fulton introduced the steamboat on the Hudson they procured a monopoly grant which until adjudged illegal gave them control over steamboat traffic in New York waters. A provision not infrequent in early American railroad charters is that by which the legislature renounces for a definite period of years the right to grant a charter over a competing route. A long controversy took place in Massachusetts between the legislature, which refused to undertake the construction of railroads upon state account, and petitioners for charters, who stood out for exclusive rights. Such rights were granted to the Boston and Lowell for a period of thirty years,¹ and the charter of the Western railroad contained a provision that no other railroad should be built within thirty years from Worcester to Hampden county, or from Springfield to the county of Berkshire.²

The South Carolina act authorizing the incorporation of a company to construct a railroad or canal from Charleston to Hamburg made provision for an exclusive right of construction of such works between these points for thirty-six years. This was later incorporated in the charter of the South Carolina Railroad and Canal company.³ Kentucky made a practice of granting such term monopolies. In the charter of the Green River railroad the legislature agreed to incorporate no parallel line within twenty miles for twenty-five years. The charter of the Bardstown and Louisville conferred a

¹ Argument of Daniel Webster on behalf of the Boston and Lowell before the railroad committee of the Mass. legislature. (1845.)

² L. Mass., 1833, c. 116.

³ Stat. at large, VIII, 354-5.

monopoly for twenty years; that of the Louisville, Nashville, and Knoxville, for thirty-six years.¹ Similarly, Georgia in the charter of the Brunswick and Florida gave a monopoly within twenty miles for twenty-five years;² and Louisiana, in an act to provide for the construction of a railroad from Albany to the Texas line, offered an exclusive privilege within ten miles for twenty years.³

The monopoly of the Delaware and Raritan canal and Camden and Amboy railroad companies was unique in American history. In the charter of the Camden and Amboy, New Jersey imposed the requirement of a transit duty of ten cents per passenger and fifteen cents per ton of merchandise transported across the state, subject to the agreement that if another railroad should be authorized the transit duties should cease. A supplementary act made lawful the transfer to the state of one thousand shares of full paid stock free of charge, with the provision that these shares should be returned in case another railroad should be constructed between New York and Philadelphia. The canal and railroad companies were then consolidated, and a second thousand shares transferred to the state under the same conditions. This agreement was to hold for thirty years from the completion of the railroad, but its terms practically nullified the benefits of this provision.⁴ The enjoyment of this monopoly,

**Exclusive
guarantees**

¹ L. 1831, c. 712; 1833, c. 206; 1836, c. 371.

² L. 1835, c. 187.

³ L. 1850, no. 307.

⁴ Address of the joint board of directors of the Delaware and Raritan canal and Camden and Amboy railroad companies to the people of New Jersey (1848); An investigation into the affairs of the Delaware and Raritan canal and Camden and Amboy railroad companies in reference to certain charges by "A Citizen of Burlington" (1848); Stockton, Appeal to the people of New Jersey, in relation to the existence of contracts between the Delaware and Raritan canal and Camden and Amboy railroad companies (1848).

which was probably the most odious in American history, was continued until 1868, when a surrender was made by the joint companies.¹ The transit duties and special privileges were abolished by the legislature in 1869.²

Another financial privilege which has been granted is the use of the lottery. This institution was well-nigh abandoned before the introduction of the railroad, yet the scarcity of capital and the public importance of a better means of transportation combined to secure from at least two states authorization for this method of financial appeal. In 1833 North Carolina appointed commissioners to raise \$50,000 for the Cape Fear, Yadkin, and Pedee railroad by means of a lottery, and to invest the sum in the stock in the name of the town of Fayetteville.³ Missouri, also in 1833, authorized the trustees of New Franklin to raise by lottery the sum of \$15,000 for the construction of a railroad from their town to the Mississippi river.⁴ This was reaffirmed in 1835.⁵

The American is said to be an opportunist. Perhaps no practice better illustrates this characteristic in the development of financial methods than the granting of banking privileges to transportation companies. During the period in which the people were reaching out for devices with which to provide funds for the development of the interior, banking privileges were granted to several bridge companies and canal companies and to many of the early railroads, particularly in the South. In some instances the power was made use of; in others it was forfeited through failure to comply with the requirements of the charter; in still others the law was repealed before the power was exercised. As early as 1814

¹ Annual report of the state directors of the joint companies and the several railroad and canal companies of the state of New Jersey, 1868.

² L. 1869, c. 104.

⁴ L. 1824-36, c. 255.

³ L. 1833-4: 196.

⁵ Ibid., c. 385.

Maryland chartered the Susquehanna Bank and Bridge company, with power to employ half its funds in the banking business.¹ In an amendment to the charter of the Delaware and Hudson canal granted by New York in 1824, the company was given the right to exercise banking powers during a period of twenty years.² New Jersey, the same year, granted a charter to the "Morris Canal and Banking company" which gave the enjoyment of banking functions through a term of thirty-one years.³ Maine, which in 1823 had authorized a lottery for the benefit of the Cumberland and Oxford canal, chartered "the Canal bank" in 1825, with authority to invest one-fourth of its paid subscriptions in the stock of the canal company.⁴ The directors of the Blackstone canal announced in 1831 that they had received a charter for a bank to be operated for the benefit of the company. Shareholders were privileged to duplicate their holdings of canal stock with shares in the bank; and three-fifths of the funds thus raised by the bank were to be exchanged for stock of the parent company.⁵ The same year, the "New Orleans Canal and Banking company" was chartered by Louisiana to construct a waterway from Lake Ponchartrain to the Mississippi at New Orleans.⁶

When the Western railroad project was in danger of abandonment in Massachusetts, a proposition was made for the incorporation of a "Western Railroad bank," to be capitalized at \$5,000,000.⁷ The time was thought favorable, for it was in that year that the charter of the second United States bank expired. Another plan suggested was to establish a state bank, to the capital of which the state should subscribe one-half, and the directors of which should be

¹ L. 1814, c. 66.

³ L. 1824: 157-8.

² L. 1824, c. 270.

⁴ Spec. L. 1825, c. 311.

⁵ L. R. I., January, 1831: 17.

⁶ L. 1831, no. 18; Sumner, *Hist. of banking*, 244.

⁷ Petition of the Western railroad corporation for the establishment of a bank to aid in constructing their road. (1836.)

authorized to subscribe for ten thousand shares of Western railroad stock. Democratic opposition in the legislature was sufficiently strong to prevent favorable action, and a direct subscription to stock in the railroad was substituted.¹ Connecticut in 1832 chartered the Quinebaug bank as an adjunct

**In New
England**

to the Boston, Norwich, and New London railroad, which later merged with the Worcester and Norwich of Massachusetts to form the Norwich and Worcester. This bank was located at Norwich, and its charter required that it should not commence operations until \$100,000 should be subscribed to its stock and \$150,000 should be expended upon the railroad. When these conditions should be fulfilled, it was to take \$100,000 of railroad stock and, in case this should prove insufficient, a second subscription to an equal amount was to be made.²

Michigan and Ohio passed through a period of "wild-cat" banking, and in both states railroads dabbled in banking. At a single session of the territorial legislature in 1835, Michigan conferred banking powers upon four railroad companies. Stockholders of the River Raisin and Grand River railroad were constituted a corporation under the title, "Bank of Tecumseh," with a capital stock of \$100,000, or two-thirds that of the railroad. This bank was to be managed by the directors of the railroad, who were to convey to it the whole of the railroad stock, and to give security for the redemption of notes and debts before banking operations could be commenced.³ The Macomb and Saginaw

**In Michigan
and Ohio**

railroad company was chartered and authorized to establish a bank at Mount Clemens,⁴ and the Detroit and St. Joseph was authorized to establish a bank at Ypsilanti.⁵ An amendment to the charter of the Erie and Kalamazoo provided for the

¹ Bliss, Hist. memoir of the Western railroad, 31-2.

² Resolves and private laws of Conn., 1789-1836, I, 137.

³ L. 1835: 5.

⁴ Ibid., 32.

⁵ Ibid., 72.

establishment of the "Erie and Kalamazoo Railroad bank," at Adrian or Tecumseh.¹ Organization was effected in 1836, and it is probable that without the aid supplied by the issue of its notes the construction of this pioneer road would have been impossible except at a much later period.² In 1837 a railroad bank for the benefit of the Detroit and Pontiac railroad was established at Pontiac.³ The bank of Macomb county at Mount Clemens made no attempt to build the Macomb and Saginaw railroad, and in order to preserve its charter it obtained legislative permission in 1840 to build a turnpike instead of a railroad. The bank failed in 1858.⁴ The Ohio railroad charter of 1835 contained a provision "that the funds of said company shall be paid out in orders drawn on the treasurer, in such manner as shall be pointed out by the by-laws of the company; and that all such orders for the payment of money so drawn shall, when presented to the treasurer, be by him paid and redeemed."⁵ Without collecting a dollar from the stockholders, and with an empty treasury, the company under authority of this clause began banking operations, and successfully maintained a large circulation. Laborers and contractors were paid in notes, and from the proceeds of the bonds of the state received as a subsidy, some of these notes were redeemed.⁶ When the company suspended, there had been no work of permanent character done on

¹ L. 1835: 147.

² Waggoner, Pioneer railroad of Ohio, *Railroad Gazette*, XXIX, 797.

³ Laws of the territory of Mich., III, 1387.

⁴ L. 1840, no. 86. Miller, Early banks and bankers of Macomb county, *Mich. Pioneer Collections*, V, 471-84. See also, Felch, Early banks and banking in Michigan, *Ibid.*, II, 111-24, and Utley, Wild-cat banking system of Michigan, *Ibid.*, V, 209-22.

⁵ L. 1835, c. 34.

⁶ Special report of the auditor of state on the condition of the several railroad companies to which the credit of the state has been loaned, 20-1. (1843.)

the road, and there were outstanding several hundred thousand dollars in worthless currency.¹

The first railroad corporation authorized in Texas was the "Texas Railroad, Navigation, and Banking company," which was chartered by the first congress of the republic to connect by railroad and canal the waters of the Sabine and the Rio Grande,² but the charter was forfeited.³ Both Texas, Louisiana, and Mississippi were liberal in their grants of the banking power not only to railroads, but to industrial corporations as well. Louisiana in 1834 conferred banking powers upon the Clinton and Port Hudson railroad, and provided for a note-issue which might reach double the amount of its banking capital.⁴ The following year this state authorized the New Orleans and Carrollton railroad to establish "five offices of discount and deposit" in different towns,⁵ and chartered a new corporation, the "Atchafalaya Railroad and Banking company," with power to open a bank in the parish of West Feliciana.⁶ In 1836 the Ponchartrain railroad received a grant of the banking power.⁷ In Mississippi we have this picture of the results of using banks as agencies of railroad financing: "From December 20, 1831, when banking privileges were conferred on the West Feliciana and Woodville railroad, until the crash came in 1837, Mississippi was gridironed with imaginary railroads and beset with railroad banks. In these enterprises there was more watered stock sold than there were cross-ties laid; reckless speculation brooked nothing as prosaic as the actual construction of railroads, on the successful operation of which it was supposed fabulous dividends would be declared."⁸

¹ Leland, Ohio railroad, *Mag. of West. Hist.*, XIII, 744.

² L. 1836: 128.

³ L. 1835: 81.

⁴ Sumner, 617.

⁵ Ibid., 39.

⁶ L. 1834: 114.

⁷ L. 1836: 39.

⁸ Brough, *Hist. of banking in Miss.*, *Miss. Hist. Soc., Publications*, III, 325-6.

This state in 1837 chartered the "Benton and Manchester Railroad and Banking company,"¹ and the Hernando Railroad and Banking company,² and in 1838 authorized the Paulding and Pontotoc railroad to deal in exchange and issue notes to one-half the amount of its capital stock, which was \$6,000,000.³ Other railroad and banking companies were: the Grand Gulf,⁴ with a branch at Gallatin, the Aberdeen and Pontotoc,⁵ and the Lake Washington and Deer Creek.⁶ The charter of the Tombigbee railroad was amended to authorize the establishment of a bank at Louisville, Winston county;⁷ that of the Mississippi and Alabama, to provide for a bank at Brandon,⁸ and again to authorize the establishment of a branch at Madisonville;⁹ and that of the Mississippi River railroad, to authorize the establishment of a bank at Natchez.¹⁰ In its charter the Northern Bank of Mississippi was empowered to construct and maintain a line of railroad from Holly Springs to the Mississippi,¹¹ and the Commercial Railroad and Banking company of Vicksburg was similarly authorized to build the Vicksburg and Jackson railroad.¹²

When the lines from Savannah to Macon and from Augusta to Athens were first projected, capital requirements were so great that appeals for state aid were made by both the Central and the Georgia railroads. Failing to receive the desired aid, they applied for banking privileges, which were granted.¹³ The names were therefore changed to the "Central Railroad and Banking company,"¹⁴ and the "Georgia Railroad and Banking company."¹⁵ One-half of the capital

¹ L. 1824-38: 706.² Ibid., 727.³ Ibid., 881.⁴ Ibid., 836.⁵ Ibid., 887.⁶ Ibid., 893.¹³ Phillips, *Hist. of transportation in the eastern cotton belt*, 221-302.¹⁴ L. 1835: 217.⁷ Ibid., 823.⁸ Ibid., 814.⁹ Ibid., 887.¹⁰ Ibid., 702.¹¹ L. 1824-38: 587.¹² L. 1839, c. 158; Sumner, 249-52.¹⁵ Ibid., 180.

of these companies could be now devoted to banking, and notes could be issued to three times the banking capital. Commenting upon these acts, a Georgia's rail-road banks Southern editor condemned in this manner the grant of banking powers: "There is no natural connection between subjects so different in their character and in their mode of operations as a bank and a railroad; and we fear that under the authority of these charters banking capital may be imprudently increased, and an unjust monopoly improperly extended. There were particular reasons for granting such privileges to the corporation which should construct a railroad from Savannah to Macon, and the withdrawal of the branch of the U. S. bank from the former city must leave a vacuum in its banking capital, which, if suffered to remain, might prove unfavorable to its business and injurious to its prosperity. It had also been ascertained by the experiment of a year that a sufficient amount of capital would not be vested in mere railroad stock. By the new charter the banking capital will be supplied, . . . and privileges granted to this corporation could not be withheld from others."¹ The Chattahoochee railroad, chartered to build a line from Columbus up the Chattahoochee river through West Point, was in 1836 given banking powers,² and the Monroe railroad received a like grant the same year in order to hasten the construction of a line from the terminus of the Central of Georgia at Macon to the Chattahoochee river.³ Unlike the other recipients of the privilege in this state, the Monroe company went forward with banking too rapidly for its resources, and bankruptcy came in 1845 before the road was completed. Through reorganization the banking powers were lost, and the company became the Macon and Western.⁴

As an adjunct to the Louisville, Cincinnati, and Charles-

¹ *Federal Union*, December 25, 1836.

² *Ibid.*, 200.

³ L. 1836: 183.

⁴ *De Bow*, X, 381.

ton railroad by which it was planned to connect Charleston with the Ohio, the "South Western Railroad bank" was chartered in South Carolina,¹ North Carolina,² and Tennessee,³ in 1836 and 1837. Kentucky granted a charter to the railroad, but in express terms prohibited banking,⁴ and the bill to incorporate the South Western Railroad bank in that state failed by six votes.⁵ This bank was capitalized

at \$6,000,000. A unique feature of the enterprise was the issue of the shares in the bank inseparably connected with the shares of the railroad, so that every one who held one hundred dollars of stock in the railroad was required to subscribe fifty dollars toward the capital of the bank. Forfeiture of either share therefore worked forfeiture of both. Branch banks were provided for in North Carolina and Tennessee, but neither the central bank in South Carolina nor the branches could begin operations until three-fourths of the \$12,000,000 capital of the railroad had been subscribed and paid; and then loans could not exceed one-half the amount of this stock. The term of the charter was ten years, but it was provided that in case the railroad should be completed to the Ohio with a double track prior to 1847, or in case the company should expend \$12,000,000 upon the work, the charter should be extended to twenty-one years. The bank was not to permit the railroad to overdraw its account; and neither its property nor its debts could lawfully exceed three times the amount of the capital. The bank went into operation in 1839, and to its stock South Carolina subscribed \$500,000.⁶

The purpose of this bank, according to Senator Robert Y. Hayne, who was president of the railroad, was to provide

¹ Stat. at large, VIII, 96.

² L. 1837-8, c. 6.

² L. 1836-7, c. 2.

⁴ L. 1836, c. 342.

⁵ Annual report of the Louisville, Cincinnati, and Charleston railroad, 1838.

⁶ Stat. at large, VIII, 104.

dividends for the stockholders pending the completion of the road. The bank was managed by a separate board of directors, and neither its stock nor its profits were in any way liable for the construction expenses of the railroad. Said President Hayne: "We consider the establishment of the railroad bank as the bond which will serve to hold the company together, and afford a certain resource in time of need, and therefore essential to the success of our great work. . . . The history of the United States affords no parallel to our bank. Never have three states concurred in a bank charter, never have charter provisions been so liberal. . . . The notes of the bank are made receivable at the State Treasurers' — the only limitation is that after the first two instalments have been paid on the bank stock, the directors of the bank shall not call for any further sums unless equal amounts shall be called for on the Railroad, the effect of which is to insure the construction of the road."¹ But the demands for capital were beyond the ability of the people to supply in the financial stress of that time, and with the abandonment of the railroad project came the suspension of specie payments by the bank. Its affairs were closed out at the expiration of the charter in 1868.²

The granting of banking privileges to railroads belonged to the early period of our corporation history, when vague notions of the nature of capital were prevalent. Only two years after the liquidation of the South Western Railroad bank, however, Florida passed a law incorporating the "Santa Rosa Railroad, Banking, and Insurance company." This company on a capital of only \$2,000,000 was authorized to build a railroad from Milton to the Alabama line, to

¹ Annual report of the Louisville, Cincinnati, and Charleston railroad, 1838.

² Proceedings of the stockholders of the South Carolina railroad company and of the South Western Railroad bank, 1868; Phillips, 188-220.

insure both lives and property, and "to do and perform any and every act that may be necessary for the business of a railroad, banking and insurance company." ¹

Among the rights granted which amounted to a public subsidy to railroad enterprise was exemption from taxation. This privilege was granted both as a supplement to direct subsidies and as a substitute for them. In some instances

Tax exemp- absolute immunity was promised, but there
tions for a defi- was usually a time or percentage limit. The
nite period property of the Richmond and Danville,² and of the Henderson and Nashville,³ in their charters was declared forever exempt. The Louisville, Nashville, and Knoxville was to enjoy exemption until dividends should exceed the legal rate of interest, when a tax upon the dividends alone might be levied.⁴ The stock and dividends of the Louisville, Cincinnati, and Charleston were to be exempt in South Carolina, North Carolina, Tennessee, and Kentucky, provided the dividends should not exceed the legal rate of interest.⁵ More common was the exemption for a specified period. The Vermont Central in its charter was declared free from all state taxes for a period of ten years after completion.⁶ Similar exemptions were granted: for twenty years to the Bardstown and Louisville;⁷ for twenty-five years to the Green River railroad,⁸ and to the International and Great Northern;⁹ for thirty years to the Raymond railroad of Mississippi,¹⁰ the Jefferson and Ponchartrain,¹¹ and the Hopkinsville and Cumberland River;¹² for thirty-six years to the Edgfield railroad of South Carolina;¹³ and for forty years to the Vidalia, Harrisonburg, and Alex-

¹ L. 1870, no. 41.

² L. Va., 1846-7, c. 117.

³ L. Ky., 1850-1, c. 384.

⁴ L. Ky., 1836, c. 37.

⁵ Stat. at large of S. C., VIII, 409.

⁶ L. Vt., 1843, no. 53.

⁷ L. Ky., 1833, c. 206.

⁸ Ibid., 1831, c. 712.

⁹ Spec. L. Tex., 1875, c. 49.

¹⁰ L. 1824-38: 853.

¹¹ L. La., 1840, no. 79.

¹² L. Ky., 1848, c. 290.

¹³ Stat. at large, VIII, 396.

andria.¹ Instances of more recent date can also be cited. New Mexico in 1897 passed a law that all railroads constructed after that time should enjoy exemption from taxation for six years after completion.² An Arizona law of 1895 promised exemption to new railroads until 1905,³ and this was later extended to ten years from 1903.⁴ The Louisiana constitution of 1898 declared that any railroad built between the adoption of the constitution and 1904 should be exempt from taxation for ten years from the date of completion,⁵ and an amendment adopted in 1904 promised exemption for ten years to all railroads constructed and completed between 1905 and 1909.⁶

Exemptions until a certain dividend should be declared were also granted. The Hartford and New Haven under its charter was to remain free from taxation until profits should warrant a dividend of five per cent.⁷ North Carolina declared exempt all the real property of the North Carolina Central until dividends in excess of six per cent should be declared,⁸ and also exempted the bonds of the company, amounting to \$350,000.⁹ Arkansas promised to exempt the Cairo and Fulton from taxation until dividends of ten per cent should be declared.¹⁰

Partial tax exemption has been a common form of subsidy. Often this limited exemption was to follow a period of absolute freedom from taxation. The charter of the Benton and Manchester exempted the stock for one year, and limited the tax thereafter to twenty-five cents a share,¹¹ and that of the Pontotoc, Oxford, and Delta prescribed the same limit

¹ L. La., 1837, no. 118.

³ L. 1895, c. 43.

² L. 1897, c. 4.

⁴ L., 1903, no. 35.

⁵ Message of Newton C. Blanchard, 1904: 12-3.

⁶ L. 1904, no. 16.

⁷ Resolves and private laws of Conn., 1789-1836, II, 1002.

⁸ L. 1854-5, c. 32.

¹⁰ L. 1855: 149.

⁹ L. 1856-7, c. 32.

¹¹ L. Miss., 1824-38: 713.

after a period of six years.¹ The Brunswick and Florida, according to its charter, was to be exempt for ten years, and at the expiration of that period was to be assessed a maximum of one-half of one per cent upon net income.² The charter of the Michigan Southern provided that its property should be assessed one-half of one per cent upon capital paid in, and that this should be increased to three-fourths of one per cent after 1851.³ The Georgia and the Central of Georgia railroads were in 1850 subjected to a tax of one-half of one per cent upon net income.⁴ Wisconsin in 1854 imposed a tax of one per cent upon gross earnings.⁵ In 1862 this was raised to three per cent,⁶ and in 1874 to four per cent.⁷ Minnesota in the charter of the Lake Superior and Mississippi limited the rate of taxation to three per cent upon gross earnings.⁸ In transferring to the Illinois Central the congressional grant of land, Illinois required, after a period of exemption of six years, in place of all other state taxation, a tax of five per cent upon gross earnings, and one upon property and assets not to exceed three-fourths of one per cent. The charter also provided that these taxes combined should be "equal at least to seven per cent of gross receipts."⁹ The company has assumed that it has met all of the requirements of this law by paying to the state seven per cent of gross earnings. The question whether this rate was intended as a minimum or maximum has been raised by the state's attorney, but never judicially determined.¹⁰

Since counties, cities, and towns are creatures of the state, they have power to grant subsidies only after permission from

¹ L. Miss., 657.

⁵ L. 1854, c. 74.

² L. Ga., 1835: 187.

⁶ L. 1862, c. 22.

³ L. 1846, no. 113.

⁷ L. 1875, c. 315.

⁴ L. 1850: 378.

⁸ L. 1865, c. 2.

⁹ Priv. L. 1851: 61; Allen, Charter tax of the Illinois Central railroad, *Jour. of Pol. Econ.*, VI, 353-67.

¹⁰ *Railway Age*, XL, 508-11.

the legislature has been obtained. Usually such authority has been freely granted, and the courts have sustained the practice. Authority to subscribe to railroad stock implies power to tax to obtain funds for the payment of the subscription, but the right to levy in payment of bonds issued can be conferred only upon express grant.¹ Legislative authority may be conferred by general or special law, and special laws may provide for aid from a specific county or town or to a specific railroad. The charter of the city of Louisville was amended to authorize a subscription to the stock of the Lexington and Ohio.² In 1837 New York authorized a loan by the city of Albany for a subscription to the stock of the Albany and West Stockbridge.³ Any county in Kentucky could, by virtue of a charter amendment obtained by the Louisville and Nashville, subscribe to stock upon vote of a majority of citizens.⁴ Louisiana in 1852 passed a general law authorizing local aid to railroads when a vote of the citizens should favor such action. When a vote should be unfavorable, provision was made for a second submission of the question within six months.⁵ Alabama passed a similar law in 1868.⁶ A general law of 1869 in Indiana provided that whenever one hundred free-holders should petition for a local appropriation in aid of railroad construction, the question should be submitted to popular vote.⁷

Types of special laws of this character were various, and the list could be indefinitely extended with almost infinite variety of detail. In general the acts of this class made specific provision for the manner of voting, and required some percentage or absolute limit to the amount of aid which could be granted. Some required evidence of adequate in-

¹ Wood, *Law of railways*, I, 293-8.

² L. Ky., 1835, c. 892.

³ L. 1837, c. 390.

⁴ Loc. L. Ky., 1850-1, c. 505.

⁵ L. 1852, no. 175.

⁶ L. 1868, no. 172.

⁷ L. 1869, c. 44.

dividual support to a project before the public aid could be given, but often the local government would impose such a condition of its own initiative. It was provided in several Kentucky acts that where local subsidies were paid from a tax levy, the stock should belong not to the local government, but to the individual holders of tax receipts. Such receipts were transferable by assignment, and exchangeable for stock when in multiples of one hundred dollars.

New York authorized any town in the counties along the route of the Albany and Susquehanna to take stock in the road.¹ It also empowered Auburn to make a loan or subscription of \$100,000 to any railroad which should be constructed from Lake Ontario to any point on the New York and Erie or on the Cayuga and Susquehanna,² and authorized towns along the chosen route to subscribe \$25,000 each.³ California in 1863 authorized subscriptions to the stock of the Central Pacific by the counties of Placer, San Francisco, and Sacramento.⁴ A unique Kentucky law authorized and required the trustees of the town of Paris to levy a tax, and to subscribe to the stock of the Covington and Lexington railroad. As citizens from outside the town limits had almost unanimously petitioned the legislature to pass a similar law, the terms of the act were extended to include them, with the provision, however, that any one who had not signed a petition should be exempt from the tax.⁵ The counties along the route of the Bellefontaine and Indiana were authorized in the charter of that road to subscribe to its stock.⁶ Kentucky in 1851 gave authority to Allen county to subscribe to the stock of the Louisville and Nashville, but conditioned the act upon the building of the road through the county of Allen and the town of Scottsville.⁷ This state,

¹ L. 1856, c. 64.

² L. 1851, c. 484; 1852, c. 134.

³ L. 1852, c. 375.

⁷ Loc. L. Ky., 1850-1, c. 429.

⁴ L. 1863, c. 125, 291, 310.

⁵ Loc. L. Ky., 1850-1, c. 154.

⁶ L. O., 1848-9: 178.

also in 1851, passed a law providing that any railroad incorporated to build a line to Lexington might ask the county court of Fayette county to subscribe not over \$200,000, and thereupon the county court was to call for an election. It was provided, however, that no one company could make more than two requests, and that no more than two votes should be taken upon the request of any one road.¹

With the hands of legislators unfettered, even the later constitutions leaving them practically free to give or withhold, it is easy to understand the attitude of those who profited by the exercise of broad corporate powers and privileges. Not only was it of prime importance to the promoter to obtain a charter which would be looked upon with favor by those to whom appeal must be made, but capital having been embarked, the temptation was ever before the officer or representative of capital interests to seek to have the original powers and privileges enlarged. Under constitutional inhibitions which restricted the legislature to general laws, thus doing away with many of the evils of special and private monopoly grants, the effort was to obtain general laws which would be most favorable, both to capitalization and operative return. The general subsidy acts and the general tax exemption acts were of this nature; and corporations already established under special acts or under obligations to the state were ready to add to their own advantage at the expense of competitors or of the public.

Attitude of
corporate inter-
ests in seeking
subsidy laws

¹ Loc. L. Ky., 1850-1, c. 163.

CHAPTER XI

METHODS OF APPEAL FOR FINANCIAL SUPPORT

WHETHER surveys had been made and charters had been obtained or not, in most cases the first indication of activity in raising funds for railroad construction was the preparation and circulation of some form of prospectus. By this is meant not alone the usual pamphlet setting forth the hopes of the promoters, but all devices by which public attention was aroused and popular support attracted through the medium of printers' ink. The prospectus has been found equally valuable whether the project was initiated as a citizen movement or as a private subject; whether appealing to local subscribers, to state support, to investors, or to the speculative public. In any event the prospectus is a significant document.

Though without common authority, or recognition of common principle, the laws which rule the mind in making rhetorical appeal for a common purpose have given to the many prospectuses a certain similarity. As a matter of literary content they are characterized by two essential features: a portrayal of the advantage to be capitalized, — usually descriptive; and an appeal to the business imagination, — usually made up of collateral suggestion and expert opinion, which by process of indirect reasoning would lead to the conclusion that the contributor of capital would obtain a large profit from the enterprise.

Frequently the prospectus was the product of a committee appointed at a public meeting or convention to formulate a plan and draft an appeal for popular support. A good

example of this form of literary effort is found in the report of a convention at Danville, in 1837, an excerpt from which is given here:

“An inspection of the map of Virginia as connected with her Southern, and South-western boundary offers at a glance to the eye of the examiner, an immediate and direct communication by the channel of the Roanoke, between the great South-western valley, and our Atlantic border. A rich and expanded area of the surface of Virginia, embracing not less than ten thousand square miles, with a population of one hundred and eighty thousand souls, a wide extent of the territories of Tennessee and Kentucky, and the richest portions of our sister state of North Carolina, embracing of her population one hundred and sixty thousand souls, seems at once connected by the ties of a common interest in this common channel of commerce . . .

**Description of
the advantage
to be capital-
ized**

“Is the contemplated work practicable? We assure our fellow citizens that it is not only practicable, but in our opinion presenting fewer obstacles to its accomplishment than any known work of the same extent on the continent of America. . . . Allowing for every contingency, it may be safely asserted, that the round sum of 5,000,000 dollars would cover the whole expenditure on the contemplated work.

“Is that a sum within our resources? Is its magnitude such as to deter us from the prosecution of an enterprise, pregnant as we believe it is with blessing inestimable to so large a portion of our people? Upon this part of the subject no observation of ours can be necessary. In times like these, of unexampled prosperity, when so large a portion of capital in every part of our wide-spread confederacy is courting a profitable investment, it can only be necessary to show that ample returns must reward the investment to ensure the application of the estimated sum to any contemplated work . . .

“The aggregate amount of tonnage now annually seeking its destination by wagons, and other means of transportation, is 150,000 tons. From this calculation are excluded the vast mineral resources on the intermediate line of the road, — the salt, lime, gypsum, iron, and lead; the three last sufficient to supply every possible demand, in fact, inexhaustible; yet according to the report of the Abingdon Convention, . . . ‘the transmission of mineral productions of South-western Virginia and East Tennessee would form the largest source of profit to the stockholders of the railroad company.’ Add to all these the continued stream of travel which now runs through the South-western valley, and which as certain as cheapness, comfort, and expedition invite the steps of the traveler, would mainly be diverted to the projected route, and the revenue of the road would swell to an amount which this Committee would feel reluctant to indicate. . . . Suppose the 150,000 tons actually seeking its destination, to travel on an average through only half the extent of our contemplated road, and suppose the average freights on exports and imports to be reduced to six cents per ton per mile, the aggregate amount of tonnage on the road, would yield a revenue of one million three hundred and fifty thousand dollars annually.

“Without pretending to accuracy in all our estimates and calculations, although they seem to us based on undeniable facts, and on the public reports of accredited public agents, we may safely assume that no error can place the revenue on this investment below twenty-five per cent. It may be objected that we have not taken into consideration the cost of superintendence and reports. To meet this objection, we suggest that the conveyance of passengers and the transportation of the mails must amply cover, if not largely exceed, all such incidental expenses. But should our expectations from these sources prove fallacious, can a doubt be entertained that the transportation of the minerals

above referred to, which as certainly as the work shall have been constructed must in large quantities be transported on this route, will more than compensate for any deficiency in the other resources of the improvement?

"To the Capitalist it holds out the strongest inducement to investments, the certainty of large dividends. To the farmer it will be a clear saving of \$20 on every hogshead of tobacco carried to market; it will afford him the means of enriching his lands, and, in many instances, will enhance their value tenfold. The great activity and impulse which it will impart to trade will enable the merchant to extend and enlarge his business, and the State will share the benefits of the general prosperity in the increased contributions to her Treasury — and in the wealth and social happiness of her citizens . . ." ¹

A striking illustration of a prospectus of a company promoted for the personal profit of the promoters is found in the Northern Pacific. An excerpt from the descriptive portion of the appeal to the uninformed investing public follows:

"The Fertile Belt of the country — 1800 miles long and at least 700 in width — extending from Lake Superior to Puget Sound, and now being developed by the rapid construction of the Northern Pacific Railroad, is probably not surpassed by any area of like extent on the continent for healthfulness, abundance, and diversity of resources and capacity for sustaining a dense population. Besides its wealth of Minerals and of Timber it admirably combines the three essentials of good farming, — a temperate Climate, a naturally rich Soil, and a fair supply of Moisture.

"The climate of Central Minnesota (the coldest point on the Northern Pacific Road) is much like that of Central New York without its dampness and chill. *From Minnesota westward the season grows steadily milder. . . .* The

¹ *Amer. Railroad Jour.*, January 28, 1837. See also earlier number for complete report of the engineer.

entire line of the road lies considerably south of the latitude of Paris and Vienna. . . . The capacious and land-locked harbors of Puget Sound, the unequaled forests of Washington Territory, the gold and silver mines of the Rocky Mountain region, the mineral wealth and fertile lands of Montana, the wheat and grazing lands of Dakota and the tributary British Provinces, and the Farm and Timber lands of Minnesota — added to a climate of singular salubrity — are some of the attractions of this new region that is now fixing the attention of the country. Nature has leveled a pathway for the Northern Pacific Railroad through the ‘Gate of the Mountains,’ and along great river valleys from the Lakes to the Ocean. . . .”¹

Constituting as it does the essential part of the prospectus literature, the report of the survey has always been distributed as widely as possible by the promoters, and by the commissioners in charge of soliciting stock subscriptions. Such a report ordinarily set forth detailed information as to grade and curvature; supported its statements by a generous supply of maps, diagrams, and tables; and prescribed estimates of the probable outlay of capital to be involved in the execution of the plans. Using the conclusions of engineers as an essential ingredient, the prospectus enlarged upon the inducement by setting forth the resources of the country to be served, estimated the earnings based upon the amount of traffic tributary to the route under existing conditions, and showed the probable business to follow the completion of the work. Eventually this sort of campaign has in most cases succeeded, although many promoters failed for want of support even after a charter had been obtained, only to be followed by others with the same general plans who succeeded because the time and conditions were ripe for the sale of securities.

¹ Poor’s Manual, 1872-3: xxii.

AGENCIES OF APPEAL

In most cases where appeal was made directly to the public it was found impossible to dispose of sufficient stock by publishing prospectuses and notices, and opening subscription books along the route and in financial centres. Personal conferences were often resorted to, and a systematic canvass instituted. When books were first opened for subscriptions to the stock of the Hudson River railroad, few shares were disposed of except to the commissioners themselves. It was therefore necessary for the men behind the project to take such subscriptions as they could from individuals until they were able to create a sentiment in the towns along the proposed route favorable to the enterprise. Obviously this method produced best results when prominent citizens were first induced to subscribe, for other subscriptions would follow as a matter of course. But in order to dispose of the stock of the Pennsylvania railroad, subscription books "were carried from house to house by the active friends of the road, who solicited even single shares." Of the 2600 subscriptions first obtained, 1900 were for five shares or less.¹

This method of appeal is suggested in an account of the financing of the Lockport and Rochester: "An adjourned meeting of the citizens of Rochester, in furtherance of the Lockport and Rochester railroad, was held last evening at the court house. . . . C. B. Stuart, Esq., reported in behalf of himself and others the progress made in respect to obtaining subscriptions to the stock. The returns from the wards are partial, there being several papers unreturned which are believed to contain subscriptions. The following shares are reported:

¹ *Amer. Railroad Jour.*, XX, 790; Ringwalt, Development of transportation systems, 125.

1st ward	.....	75 shares
2nd ward	.. . . .	30 shares
5th ward	.....	118 shares
6th ward	.....	54 shares
7th ward	.....	16 shares
		<hr/> 293 shares”

Boston was thoroughly canvassed for subscriptions to the stock of the Western railroad, and those most interested in the project visited the large towns along the route, and interviewed every one whose influence was thought valuable. As a final effort to obtain enough subscriptions to meet the requirements of the charter, a meeting was held in Fanueil hall at which committees of solicitors were appointed for every ward in Boston and South Boston, and for the neighboring cities. Members of these committees were pledged to call upon every man in their precincts, and personally urge upon each one as a matter of public duty to share in the responsibilities of the work.¹ Canvasses were also made in the towns along the route of the Galena and Chicago Union railroad to obtain subscriptions to serve as a basis for solicitation for funds from Eastern capitalists,² and at a convention in support of the Georgia Air Line canvassers were appointed to visit the various counties which would be benefited by the construction of the road, and solicit subscriptions to stock.³

Local newspapers were almost invariably friendly to new railroads, and their liberal donation of news space was one of the most effective aids to those in charge. Editorial controversies over minor features of the plans, — choice of route, gauge, form and amount of public aid — kept popular interest alive. Many of the representative journals

¹ Bliss, *Hist. memoir of the Western railroad*, 27-8.

² Eames, *American Railroad, Mag. of West. Hist.*, XII, 96.

³ *Southern Watchman*, July 31, 1856.

of the country conducted the same sort of campaign of education. The American Railroad Journal was for many years little more than a collective prospectus. Niles' Register, De Bow's Commercial Review, and Hunt's Merchants' Magazine gave their influence freely in support of railroad enterprise, and, it must be said, with little examination of the merits of individual projects.

The railroad came in an age of pamphleteering, and practically every fact which could be marshaled for or against any important project was presented to the public in this manner. Addresses at conventions, petitions and memorials to councils or legislatures, resolutions of boards of trade and other representative bodies, were often reprinted and circulated in pamphlet form, together with information about the route, the productiveness of the territory which it was proposed to open, and the advantages of the connections which would be effected.

In adopting the public meeting for the furtherance of their plans the early railroad promoters were only employing an institution which, whether official or not, had become established in the habits of the people. Such gatherings had been held repeatedly to attract support to canals and other forms of improvements throughout the country, and it was merely following precedent when in 1827 the merchants of Baltimore called a public meeting to adopt measures looking to the connection of their city with the Ohio river by a line of railroad.¹

It must not be supposed, however, that all these popular gatherings had their initiation in the general enthusiasm in favor of railroad construction. Many meetings were undoubtedly held to offer inducements to railroad promoters, but in general it may be said that railroad meetings

¹ *Amer. Railroad Jour.*, I, 18.

were prompted and managed by promoters or by interests favorable to them. On the back of the cover of a prospectus of the Albany and Susquehanna is this notice: "The Directors of the Albany and Susquehanna R. R. Company propose holding the following *series of meetings* for the purpose of recommending this important enterprise to the favorable consideration of the people of the counties of *Schoharie, Otsego, Delaware, Chenango, and Broome. . .*"¹

Larger and more formal assemblies were often held. Towns would send delegates to county conventions; counties along the route of a proposed line would hold conventions to discuss a project; and in some instances delegates from several states came together in conventions. Action in these assemblies was often indecisive. Citizens of six Massachusetts towns met at Sunderland to consider the construction of a connecting line of railroad between Hadley and Miller's Falls. The only result was a resolution in favor of the project.² This may serve to illustrate the character of many such meetings, where little was advanced in support of the enterprise save good will and the hope that other people would furnish the capital and assume the risk of the enterprise. In many cases committees were appointed at these meetings to collect data bearing upon the route and the resources of the region to be traversed. This was done at Portland in connection with the proposed line to Quebec,³ and at Hardwick, at a meeting in support of the projected road between Worcester and Springfield.⁴ At Montpelier delegates from the counties of Orange and Washington assembled to consider the report of a committee which had

¹ Some considerations respecting the proposed construction of the Albany and Susquehanna R. R. (1852.)

² *Connecticut Courant*, July 6, 1844.

³ *Portland Advertiser*, May 29, 1835.

⁴ *Springfield Gazette*, April 22, 1835.

been instructed to procure information regarding the possibilities of a railroad from Ogdensburg to Boston.¹

Sometimes at these meetings committees would be appointed to prepare an address to the people, setting forth the arguments in favor of a projected line. This was done at Okotona, Mississippi, where a convention was held to promote the building of a railroad from Selma to Memphis. At this convention also, a committee was chosen to obtain the necessary charters for the enterprise.² A committee was appointed at a railroad meeting in Clarksville, Georgia, to memorialize the legislature to grant a charter for the construction of a line from some point on the Georgia railroad to the Blue Ridge railroad at Clayton.³ A meeting held at Newport in 1837 to take into consideration the expediency of constructing a railroad from that place to Taunton, "there to connect with the railroad running thence to Boston," is of interest because of the many functions assigned to committees.

"At said meeting, committees were appointed for the following purposes, viz:

1. To ascertain and report upon the practicability of constructing the contemplated road, reference being had to the several modes of construction now in use, with the estimate of the cost of each, &c.

2. To report upon the sources whence the proposed road may derive an income sufficient to pay a fair and certain profit to its stockholders; on the presumable advantages to be derived by the various interests of Agriculture, Commerce, Manufactures, and general intercourse, &c.

3. To report upon the importance and validity of the road, in a national and military point of view, and in refer-

¹ *New England Palladium*, March 12, 1830.

² *De Bow* (n. s.), III, 435. (1867.)

³ *Southern Banner*, September 22, 1853.

ence to the establishment of a Naval Depot, Arsenal, and Foundry by Government.

4. To correspond with the Merchants, Manufacturers, Steamboat Companies, Capitalists, and others interested in New York, Providence, Boston, and elsewhere, to invite delegates from these places to attend a general Convention at Newport, and to collect and publish such facts relative to this important enterprise, from time to time, as they may deem advisable, and report their doings to the General Convention.

5. To report upon the necessary measures for procuring a charter and for uniting with the present incorporated companies."¹

Committees of correspondence were often employed to communicate with similar committees for the purpose of obtaining information, and also to secure pledges of support from towns along the proposed line, as in the case of a convention at Winsor, Vermont, held to encourage the construction of the Connecticut and Passumpsic Rivers railroad;² a meeting at Hartford in favor of a railroad to Worcester;³ and a similar gathering at Prattsburg, New York, in favor of the Canandaigua and Corning railroad.⁴

Meetings and conventions to petition for state and municipal aid were held to invoke state aid. The towns of Tompkins county, New York, met in convention at Ithaca, and petitioned the legislature for aid to the New York and Erie railroad,⁵ and a convention at Troy appealed to the legislature to establish a board of internal improvements, and to

¹ *Amer. Railroad Jour.*, VI, 131.

² *Hampden Whig*, January 8, 1836.

³ *Springfield Gazette*, February 4, 1835.

⁴ *Rochester American*, June 19, 1845.

⁵ *Albany Evening Journal*, February 9, 1839.

pass subsidy acts.¹ At Macon, Georgia, in 1837, a convention representing thirty-eight counties recommended a general system of railroad improvements.²

Resolutions in favor of local subscriptions were a common feature of these assemblies. An Allegheny county convention at Pittsburgh in 1848 recommended a county subscription to 20,000 shares of Pennsylvania railroad stock.³ Another meeting at Allegheny in 1849 favored subscriptions by Pittsburgh and Allegheny to the stock of the Ohio and Pennsylvania.⁴

Railroad meetings were often more disposed to recommend that aid be given to a project by the general public, or by some local or state government, than to propose subscriptions from those in attendance. Yet active individual support was forthcoming at many of these railroad meetings, and there is no doubt that the contributions attracted in this manner aggregated a substantial sum. Subscriptions were sometimes taken at these meetings to defray the expenses of a survey. This was done in 1831 at a meeting in Carbondale in support of the Ithaca and Carbondale railroad,⁵ and at Springfield, where money was raised to pay the expenses of a survey for a railroad to Hartford.⁶ Many meetings were held for the sole purpose of obtaining regular subscriptions to the stock. Such a one was held at Pittsburgh in 1835 to obtain enough subscriptions to the stock of the Baltimore and Ohio to induce the company to make that city the terminus of its northern division.⁷ "A railroad meeting and barbecue was recently held at Dallas, Madison

Subscriptions
taken at the
meetings

¹ *Troy Whig*, August 2, 1839.

² *Jour. of the Franklin Institute* (n. s.), XX, 259.

³ *Amer. Railroad Jour.*, XXI, 372.

⁴ *Ibid.*, XXII, 278.

⁵ *Hazard's Register of Pa.*, VII, 238.

⁶ *Springfield Gazette*, December 5, 1838.

⁷ *Amer. Railroad Jour.*, IV, 465.

Parish, La., and \$40,000 subscribed to the Vicksburg and Shreveport Railroad company," says a despatch of 1852.¹ Such meetings were held everywhere, and as early as 1831 we are told that in New York state: "It is almost impossible to open a paper without finding an account of some railroad meeting. An epidemic on this subject seems nearly as prevalent throughout the country as the influenza."² A Georgia editor about the same time said: "We now hear of meetings all around us, companies are being organized, and plans systematized for projecting and maturing objects of improvement."³

A novel method of appeal for support of a railroad venture was employed by the promoters of the Western railroad of Massachusetts. P. P. F. Degrand, an active supporter of the enterprise, learning that a young Boston minister had preached a sermon upon the moral and Christianizing influences of railroads, seized upon the idea and had a circular letter sent to the clergymen throughout the state, requesting their coöperation in similar addresses.⁴

The pulpit as
an agency of
appeal

¹ *Amer. Railroad Jour.*, XXV, 667.

² Quoted by Mott, *Between the ocean and the lakes*, 9; from the *Independent Republican*, Goshen, N. Y., December 26, 1831.

³ *Southern Banner*, September 14, 1833; from the *Macon Messenger*.

⁴ Adams, *Railroads, their origin and problems*, 65. A copy of this letter follows:

BOSTON, December 19th, 1838.

DEAR SIR, — The Committee appointed by the Western Rail-Road Corporation to assist the Directors in their application to the Legislature for aid to finish the Road to the Western line of the State have thought that the surest way to obtain their object would be to bring the importance of Rail-Roads before the whole people of our beloved Commonwealth. Its importance to our worldly prosperity we point out by an address circulated extensively throughout the State. But we are desirous to spread far and wide the Moral effects of Rail-Roads on our widespread country. This, we think, can best be done from the Pulpit. In this belief, we take leave, most respectfully, but earnestly, to ask you to take an early opportunity

A still wider appeal was made beyond the pale of local interest to the investment world at large. Stocks were put on sale in financial centres by banking houses selected by the railroad as financial agents. In other cases they were issued through the office of the treasurer which was located in New York or Boston for that purpose. Through financial agencies European investors were given opportunity to contribute to the building of American railroads. The Camden and Amboy raised \$3,000,000 on a loan in England,¹ and the president of the Baltimore and Ohio was able to sell to London bankers the \$3,000,000 of Maryland bonds which had been received in payment of the state subscription to the stock.²

But while English capitalists were willing to take our state railroad subsidy bonds, and railroad bonds which were supported by endorsement of public authority, for a long time they were wary of investments in American railroad bonds which had behind them nothing but the credit of the road. The Camden and Amboy loan was an exceptional case, for that road was bolstered up by its monopoly privilege; but when the Illinois Central sent Robert J. Walker to England to negotiate a direct loan, the success of the to deliver a Discourse before your Congregation on the Moral effects of Rail-Roads in our wide extended country.

"Trusting that the great importance of the subject to every inhabitant of this community will be a sufficient apology for asking your assistance in this great work,

"I have the honor to be, Reverend Sir,

Respectfully, your very ob't serv't,

WILLIAM SAVAGE.

Chairman of the Committee on Correspondence."

Dimmick, Discourse on the moral influence of railroads, 3-4. (Newburyport, 1841.)

¹ Ringwalt, 79.

² *Amer. Railroad Jour.*, IX, 271; Bowen, *Rambles in the path of the steam horse*, 76-80.

mission was regarded as questionable. Our best roads were not popular with British investors, who had suffered loss from their own railroad enterprises. The Germans and French generally had more confidence, and to them went most of our railroad securities which were sold on foreign account prior to 1852.¹ In 1853, according to a special report of the secretary of the treasury, based upon the returns of two hundred and twenty-two companies, \$43,169,000 of American railroad securities were held by foreigners, of which \$36,125,000 represented bonds.² The banking house of Jay Cooke and company in 1869 estimated that there were held abroad, or for foreign account, \$130,000,000 of bonds and \$113,000,000 of stock of American railroads. Complete returns from seven companies showed a total of \$83,449,800 of stock; and fourteen companies reported a total of \$61,350,349 of bonds.³ It was estimated in 1907 that from \$6,000,000,000 to \$6,500,000,000 of American securities of all kinds were held in Europe. These were distributed as follows: Great Britain, \$4,000,000,000; Germany, \$1,000,000,000; Holland, from \$600,000,000 to \$700,000,000; France, \$300,000,000; Switzerland, \$100,000,000. A large portion of these was made up of railroad securities.⁴

¹ *Amer. Railroad Jour.*, XXIV, 792, 827, XXV, 26, 114, XXVI, 379.

² *Hunt*, XXXI, 117.

³ Report of the special commissioner of the revenue, 1869, 41 cong. 2 sess., H. ex. doc. v. 5, no. 27, serial 1416, p. xviii; D. A. Wells, *Revenue of the U. S.*, 29-30. (1870.)

⁴ Speare, *Selling American bonds in Europe*, *Annals*, XXX, 283. See also Bacon, *Amer. international indebtedness*, *Yale Rev.*, IX, 265-85.

CHAPTER XII

INDIVIDUAL AND LOCAL SUBSIDIES TO PRIVATE COMPANIES

THE form of financial support obtained depended upon the time and circumstances of the undertaking, and upon the motive of self-interest to which it appealed. Generally speaking, contributions may be classed under one of the following heads: (1) subsidies, (2) speculative ventures, (3) investments. Among subsidies would be included gifts or donations of individuals and public corporations, and subscriptions of persons who were interested in obtaining a road simply as an aid to their own enterprise. State and local aid, when given in the form of subscriptions or guarantees, may also be considered in this relation. Speculators in many instances were professionals who hoped to unload on a rising market, but most of this class purchased because of glowing descriptions of opportunity circulated in a well-written prospectus. Investors were of two classes, those who interested themselves in a project as a local improvement concerning which well-considered investment judgment might be arrived at, and the large investors who took stock or bonds after investigation by a financial agent.

INDIVIDUAL SUBSIDIES

As has been pointed out, it was customary for promoters to stimulate individual subsidies as much as possible. Mention has already been made of individual subscriptions taken to defray the expense of surveys. The Mobile and Ohio adopted the plan of looking to the region through

which the road was projected for support sufficient to defray local expenses and prepare the ground for the rails. Stock was assigned to the counties on the basis of wealth and population, and active work was depended upon to place it in the hands of the people.¹ A similar policy was adopted upon the Galena and Chicago Union, and local support was found so satisfactory that the projectors decided to begin the work of construction without waiting for outside capital, with the assurance that capitalists would be attracted to a venture which was regarded with so much local favor.² An early report of the Indianapolis and Bellefontaine shows that of the \$480,000 received in return for stock, only \$206,000 was in cash. Land subscriptions aggregated \$232,000, and the balance was paid in labor and materials.³ An amendment to the charter of the Henderson and Nashville authorized the receipt of labor and materials in payment of stock subscriptions,⁴ and the charter of New Orleans, Shreveport, and Kansas also conferred this authority.⁵

Individual subscriptions were often paid in land, labor, or some other substitute for money; and in some charters direct provision was made for this substitution. The Chesapeake and Ohio was thus empowered to receive five million acres in subscriptions to its stock, or by purchase; but lands not necessary for the purposes of the road were required to be sold within ten years.⁶ Less than five per cent of the subscriptions to the stock of the Ohio and Indiana was paid in cash. Shares were paid for in contractors' work, town lots, and farms. Similarly, the Ohio and Pennsylvania received only one-fifth of the

¹ *Amer. Railroad Jour.*, XXII, 137, XXIV, 557, XXVI, 465.

² Eames, *American railroad, Mag. of West. Hist.*, XII, 95-6.

³ Annual report, 1851.

⁴ *Loc. L. Ky.*, 1850-1, c. 384.

⁵ *L. La.*, 1857, no. 230.

⁶ *L. Va.*, 1866-7, c. 280; *L. W. Va.*, 1867, c. 93.

cost of the road and equipment in cash, and the Fort Wayne and Chicago, less than three per cent. The remainder represented lands, town lots, labor, and other forms of indirect payment. The lands received in this way were mortgaged, and the money obtained paid for construction.¹

Lands were regarded with particular favor by the promoters in the Middle West, for it was confidently believed that by the building of a railroad the prices of all lands in the neighborhood would so advance as to show a substantial profit independent of the profits from the railroad itself. And the fact that a railroad was privileged to hold lands was often put forth as a promise of a sufficient bonus to overcome the reluctance of capitalists to embark in the enterprise. The Mount Carmel and New Albany railroad of Indiana possessed this authority, and in the prospectus the promoters asserted: "Were the company to purchase a million of acres of the lands adjacent to the work, *the increase alone* in the price of the lands so purchased, would, before the work is half completed, pay for the entire construction of the work. The bare location of the route will triple the price of every acre of land within two miles of it. All that is wanted is capital to invest in lands, and go on with the work for a short time without being compelled to make sale of them."²

While unreasonable demands have sometimes been made for land taken by exercise of corporate powers of expropriation, the railroads of this country have very generally obtained releases for right of way by donation. This in a measure explains the low cost of construction of American roads as compared with those of England and the continent. Many of the land owners along the route of the Boston and Worcester united in an agreement to release the company from all claims for damages or

¹ Hist. of the Pittsburgh, Fort Wayne, and Chicago railroad, 2-6.

² *Amer. Railroad Jour.*, VI, 546. (1837.)

compensation for the use of their land. Others sold their property at a moderate price.¹ The Ohio and Indiana also generally obtained its right of way through donations.² The same was true of the Sandusky and Mansfield and many other roads of the Middle West.³ The fact that so many of the people along the route of the New York and Erie owned stock in the company not only made general the free cession of right of way and lands for station purposes, but it also created a sentiment which kept down the prices of materials to reasonable figures.⁴ Landholders on the route of the Georgia railroad generally gave the right of way, and also in many instances, timber for the superstructure.⁵

Throughout the West it has been the rule that lands for stations and yards have been granted free of encumbrance or condition, and in many cases the lands available for town site purposes about the stations have also been included in these gifts. Many Western railroad charters made specific provision for such donations. The Indianapolis and Bellefontaine railroad was empowered to obtain a relinquishment of so much of the land as might be necessary for the construction or location of the road, and also to accept donations of stone, gravel, timber, and other materials.⁶ In some states such grants have been provided for in the general statutes.

A method of disposing of stock which was employed in the West, particularly in Wisconsin, was to accept in payment of a subscription, a note secured by a farm mortgage. These notes were guaranteed by the company as to principal and interest, and sold on the market. Agreements

¹ *Boston American Traveller*, January 1, 1839.

² *Amer. Railroad Jour.*, January 8, 1853.

³ Sherman, *Recollections*, I, 81.

⁴ New York, Report of the committee on railroads on the New York and Erie railroad, 11. (1841.)

⁵ Annual report, 1838.

⁶ *Loc. L. Ind.*, 1848, c. 24.

were also made by which the companies paid interest on the notes to the end of the term, usually ten years, and the farmer assigned prospective dividends on his stock to an amount sufficient to pay interest charges. This plan was adopted by the La Crosse and Milwaukee, which obtained \$1,100,000 of subscriptions of this class; also by the Milwaukee and Mississippi, and the Racine and Mississippi,¹ the Chicago, St. Paul, and Fond du Lac, and the Madison and Watertown.² An estimated total of \$3,500,000 in this form was received by the railroads in Wisconsin.³ Much of the stock given in return eventually proved worthless.

In many cases stock subscriptions were given without any regard either to possible profits from sale or permanent income after construction. It is undoubtedly true that a large part of stock subscriptions which were taken along the route of any early railroad were regarded as private subsidies. Such were usually the subscriptions received at railroad meetings and conventions, where the appeal was invariably made upon the basis of public benefit rather than private profit. Such also were the subscriptions of the merchant class, desirous of a freer access to sources of supply, and a wider range for the marketing of goods; and the same was true of the farmer attracted by the prospect of gain not in dividends but from increased prices of products and from added value to his land.⁴

Stock subscrip-
tions given as
private sub-
sidies Fully two-thirds of the original stock of the McGregor, St. Peter, and Missouri River railroad was subscribed by farmers and mechanics along the line, and in small towns within the territory served by the

¹ Cary, Organ. and hist. of the Chicago, Milwaukee, and St. Paul railway, 17, 125, 127.

² *Amer. Railroad Jour.*, XXVI, 104.

³ *Madison Democrat*, September 10, 1874.

⁴ Sherman, I, 81-2.

road.¹ Four-fifths of the stockholders of the Milwaukee, Waukesha, and Mississippi railroad were of the same class, and the others were Milwaukee business men.² The manufacturers of the Merrimac river were behind the Boston and Lowell project; and it was largely upon their financial support that the road was built.³ Abbott Lawrence, one of the most prominent of these manufacturers, subscribed liberally to all of the projected lines, with reference more to the indirect than to the direct returns from the investment.⁴ The Boston and Worcester railroad was financed largely by the merchants of Boston;⁵ and San Francisco merchants were prominent among those who organized the San Francisco and San Joaquin Valley railway in 1895.⁶

The merchant class was also behind the Baltimore and Ohio, and when, at the inception of the project, it was in danger of being abandoned for want of funds, the subscriptions which were obtained were largely from business men. One-fifth of the total number of shares was taken by eleven individuals and firms.⁷ Subscriptions to stock of the Western railroad of Massachusetts averaged less than \$1000, and most of them were made with a view to public interest rather than with any idea of direct profit.⁸ No effort was made to procure outside subscriptions to the stock of the Tonawanda railroad, but all the shares were disposed of within a single day.⁹ In fact, so widely scattered were the shares

¹ Annual report, 1858.

² Annual report, 1849.

³ Railroad jubilee. An account of the celebration of the opening of railroad communication between Boston and Canada, 233. (1852.)

⁴ Hill, Memoir of Abbott Lawrence, 10.

⁵ Railroad jubilee, ut supra.

⁶ Walker, Pioneers of prosperity, 97.

⁷ Niles, XXXVI, 349.

⁸ Bliss, Hist. memoir of the Western railroad, 31; *Springfield Gazette*, December 9, 1835.

⁹ *Amer. Railroad Jour.*, VI, 481. (1837.)

of the railroads between Albany and Lake Erie that they were rarely quoted on the market.

Towns situated at some distance from a line of railroad have not infrequently been required to furnish liberal subsidies to the railroads as a bonus before a desired connection or extension would be furnished. In 1856 the people of Mansfield, Ohio, applied to the Atlantic and Great Western for terms upon which the road would be extended through their town. In return the directors prescribed a subscription of \$100,000, and a right of way and station sites at fair prices, payable in stock. Under these conditions the road was built.¹ A similar request from the citizens of Randolph and Terrell counties was met by the directors

Pressure to
obtain local
subsidies

of the South Western railroad of Georgia with a proposition that if these counties should subscribe to \$175,000 of stock, the road would be extended to Cuthbert; if \$150,000 of additional stock should be taken, the road would be built to the Chattahoochee river near Fort Gaines, and if a further subscription of \$300,000 should be made by the citizens of Cuthbert and Eufaula, the terminus of the road would be located opposite Eufaula. The extension was made in accordance with these terms.² The Northern Pacific in 1880, in response to a request for an extension into Superior, promised to build to that town for one-third of the "lands, premises, and real estate" in the city, together with a right of way. Hard as these terms were, "the town was railroad hungry," and the offer was accepted.³

In 1895 an agreement was entered into between citizens of De Kalb, Illinois, and the Chicago Great Western, under which the De Kalb and Great Western railway was built between De Kalb and the line of the Chicago Great Western

¹ Annual report, 1856.

² Annual report, 1857.

³ Griffin, The Great Lakes in relation to the railroad development of northern Wisconsin, St. Hist. Soc. of Wis., *Proceedings*, XLI, 222.

at Sycamore, a distance of six miles. Money for construction was furnished by the citizens and contractors, and the completed road was taken over by the Chicago Great Western at a rental of one-third the earnings of De Kalb station until cost plus six per cent was returned, when the branch passed without encumbrance into the possession of the Chicago Great Western.¹

LOCAL SUBSIDIES TO PRIVATE COMPANIES

Local subsidies have been common in every state, but the aggregate amount which the railroads have received from this source has never been determined, and in view of the scattered nature of the essential data, it is probable that a rough approximation will be the utmost result obtainable. There have been several attempts to estimate the amount of aid of this character given within a single state, but all are admittedly incomplete. According to a statement made by the auditor-general to the Pennsylvania senate in 1852, the amount of local subsidies to railroads in that state was \$9,866,502.² In a special report to the senate of Kentucky in 1871 the auditor stated that the local debt which had been incurred in aiding railroad construction aggregated \$13,783,983,³ and a statement prepared by the board of railroad commissioners of Massachusetts, also in 1871, showed that the amount voted by towns in that state in aid of railroad construction had reached \$2,351,000.⁴ The railroad and warehouse commission of Illinois was able in 1873 to receive replies from only eighty-six out of one hundred and two counties in response to a request for reports of local

The amount
of local sub-
sidies granted

¹ Poor's Manual, 1896: 299-300.

² Statement of the amount of bonds, scrip, and other certificates of indebtedness issued by the several counties, incorporated cities, etc. Senate Journal, 1852, II, 327-8.

³ Senate Journal, Adjourned sess., 1870-1: 314-8.

⁴ Second annual report, 9. (1871.)

railroad subsidies, but the aggregate figure for the reporting counties was \$16,088,027.¹ A statement of local aid in Wisconsin, compiled in 1874, shows a total of \$8,522,224, but some counties failed to report, and no deductions were made in this estimate to represent compromises effected after the aid had been authorized.² The local railroad debt in Connecticut in 1883 amounted to \$5,106,000. This was about three-fourths of the total local debt in the state.³ A recent summary of town and country railroad aid in Alabama, which includes only subsidies authorized by special enactment, and thus ignores those granted under general law or without sanction of law, shows a total of \$2,545,000.⁴ Between 1869 and 1905 the towns and counties of Minnesota issued \$2,949,150 of bonds in aid of forty-eight railroads.⁵ Two hundred and ninety-four cities, towns, and villages in New York contributed \$29,978,206 to railroads, and fifty-one counties gave subsidies varying from \$5000 to over \$3,000,000 each.⁶ In forty-three Nebraska counties there has been voted a total of \$4,918,000 railroad subsidy bonds.⁷ Seven Missouri railroads received \$8,124,075 in city and county subscriptions.⁸ The counties of Virginia have incurred a railroad debt of over \$10,000,000.⁹ The amount of town and county railroad indebtedness in Iowa as early as 1856 was in excess of \$7,000,000.¹⁰ According to a state-

¹ Third annual report, 8. (1873.) See also Auditor's report, 1882: 217.

² *Madison Democrat*, September 10, 1874.

³ Statement of indebtedness of every town in the state for railroads, state institutions, and war debt. (1883.)

⁴ Fleming, Civil war and reconstruction in Ala., 605.

⁵ Auditor's report, 1905-6: 201-6.

⁶ McVey, State aid to N. Y. railways, *Social Economist*, VII, 104-5.

⁷ Tingley, Bond subsidies to railroads in Neb., *Quar. Jour. of Econ.*, VI, 347.

⁸ Million, State aid to railways in Mo., 232-7.

⁹ Flanagan, Municipal aid to railroads, *Virginia Law Jour.*, XV, 465.

¹⁰ Message of James W. Grimes, Shambaugh, Messages of the governors of Ia., II, 37.

ment prepared in 1853, the railroad debt of Wheeling amounted to \$55 per capita; Baltimore, \$43; Pittsburgh, \$34; St. Louis, \$30; Louisville, \$25; New Orleans, \$23; Philadelphia, \$20. The aggregate figures were: Wheeling, \$1,100,000; Baltimore, \$7,830,000; Pittsburgh, \$3,450,000; St. Louis, \$2,500,000; Louisville, \$1,500,000; New Orleans, \$3,500,000; Philadelphia, \$8,154,000.¹

Various motives prompted these local subsidies. All communities wish to increase trade activity, and to that end many have aided in the construction of railroads which promised to increase the area tributary to their merchants, or to preserve a trade advantage in competition with rivals. For this reason Baltimore became an early subscriber, advancing large sums to the Baltimore and Ohio, and later to the Northwestern of Virginia, the Western Maryland, and other roads; Philadelphia subscribed liberally to the stock of the Pennsylvania, the Hempfield, and the Sunbury and Erie; and New Orleans took a large amount of stock in the New Orleans, Opelousas, and Great Western. Inducements have many times been offered in this manner by

Reasons as-
signed for
local aid

towns which wished to be chosen as the terminus of some projected line. Thus Pittsburgh took stock in the Pittsburgh and Steubenville.

Often such a subsidy was conditioned upon favorable action by the railroad. In this manner Allegheny county offered to take \$1,000,000 of stock provided the Pennsylvania should locate its western terminus at Pittsburgh. Similarly Mason county, Virginia, offered an inducement to the Covington and Ohio in favor of the town of Point Pleasant; and Paducah by this means attracted the Mobile and Ohio. Because of a large subscription offered by Marietta, the Marietta and Cincinnati gave up Belpré as its Ohio river terminus, but it also constructed a branch to Belpré, which was the western terminus of the Northwestern of Vir-

¹ *Hunt*, XXIX, 613.

ginia.¹ When the Rochester and Syracuse, the Auburn and Syracuse, and the Auburn and Rochester were built, capital was difficult to obtain, and the communities along the proposed route put forth every effort to assist the work. They exerted a commanding influence in determining the location of the route, which as the result of various local wants took an irregular course by way of Canadaigua, Auburn, and Geneva.² As late as 1891 Lincoln, Nebraska, offered a subsidy to the Chicago, Rock Island, and Pacific, but in this instance the argument was not that the road would not otherwise come to the city, but that it would be bad policy to offend the Rock Island people by refusing to grant their request.³

Railroad connection was so vital a matter to the trade of a community that the aid of a town or county took on the semblance of an investment. In some instances there was a belief that not only would the money advanced as a subsidy to railroads increase local trade activity, but also bring direct returns as an investment. Allegheny county thus subscribed to stock in the Pennsylvania railroad, expecting that the company would pay dividends sufficient to relieve the county from any taxation for interest on the bonds. This the railroad could not do, and in consequence, for years no legislator could cast a vote for any measure favorable to the company without committing political suicide in that county.⁴

Subsidies in
the form of
town and
county sub-
scriptions

A Kentucky act authorizing Covington to take stock in the Covington and Lexington, provided that until dividends should be paid upon the stock the city should receive six per cent interest payable in stock upon the amount of its subscriptions.⁵ Hope of this sort was bolstered up by

¹ Data from file of the *American Railroad Journal*.

² Flint, *Railroads of the U. S.*, 156.

³ Tingley, *ut supra*, 351.

⁴ McClure, *Old time notes of Pa.*, I, 142.

⁵ *Loc. L.* 1850-1. c. 507.

the fact that some cities and counties did receive dividends; but experience soon identified all local aid with subsidies, and subsidies were often loosely characterized as donations, whatever their form.

When a railroad received local bonds in return for its stock, it would sell them in New York or in Europe, or wherever a market could be found, and often at a considerable loss from discount and commissions. Sometimes a subscription would be paid partly in bonds and partly in tax proceeds, as in the case of the Louisville subscription of \$1,000,000 to the Louisville and Nashville in 1851.¹ It was the policy of the Mobile and Ohio to avoid long term local bonds with their inferior security, and to encourage the issue of "tax bonds." Thus Gibson county, Tennessee, in 1852, voted \$150,000 in aid of that road, and pledged taxes for three years as security, and Madison county voted \$250,000 under the same conditions. In Alabama, Mississippi, and Kentucky, this was also a common practice; and in Tennessee it was provided for by a law which prescribed that in no case could more than one-third of the debt be collected in any single year.²

FORMS OF LOCAL AID

A subscription to railroad stock by a public corporation is an ordinary purchase of proprietary interest in the corporation, but when bonds are issued in payment for this stock by the town or county, a loan of public credit is involved. Within the meaning of this term are also included the guarantees of railroad bonds and the exchanges of public bonds for railroad bonds. A guarantee or simple endorsement constitutes a contingent liability. Under this heading comes the endorsement by the

**Stock sub-
scription**

**Guarantee and
endorsement**

¹ *Amer. Railroad Jour.*, XXIV, 373.

² L. 1851-2, c. 117.

city of Covington upon the bonds of the Covington and Lexington to the amount of \$200,000 in 1852,¹ and by Baltimore upon \$1,000,000 of Pittsburgh and Connellsville bonds in 1853.² Portland pledged the interest upon \$250,000 of the bonds of the Oregon Central, Yamhill county upon \$75,000, and Washington county upon \$50,000.³ As late as 1891 Washington county, Maine, was empowered by a special act to guarantee for thirty years five per cent interest upon \$650,000 of the bonds of the Maine Shore Line.⁴

The exchange of municipal bonds for the bonds of railroads has been a much commoner form of local government subsidy than the guarantee. Here the liability of the city

Exchange of
municipal
bonds for
company
securities

or county is absolute, and the bonds taken in exchange for the public issues are secured by a lien upon the property of the corporation. The city of Bangor loaned \$500,000 to the European and North American, and took in re-

turn bonds secured by a first mortgage upon the road from Bangor to Lincoln and Winn.⁵ Baltimore loaned \$1,500,000 in bonds to the Northwestern of Virginia, and \$5,000,000 to the Baltimore and Ohio, and received a preferred lien in each case.⁶ Often an inferior lien was taken. Hartford and Providence exchanged bonds with the Hartford, Providence, and Fishkill to the amount of \$500,000 each. Providence received a first mortgage upon the portion of the road in Rhode Island, but Hartford took a second mortgage upon the part in Connecticut.⁷ Milwaukee received a second mortgage upon the Milwaukee and Horican as security for

¹ *Hunt*, XIII, 528.

² *Amer. Railroad Jour.*, XX, 34.

³ Bancroft, Oregon, II, 699.

⁴ Priv. L. 1891, c. 257.

⁵ Memorial of the European and North American railway to the legislature of Mass. for state aid. (1866.)

⁶ *Amer. Railroad Jour.*, XXV, 283, XXVII, 806.

⁷ Bayles, Providence county, I, 282.

a subsidy loan,¹ but took from the Milwaukee and Fond du Lac, and the La Crosse and Milwaukee, first mortgages upon short sections of these roads, with the provision that the liens might be reduced to second rank to allow new first mortgages to be executed to the extent of \$10,000 per mile.² In aid of the Milwaukee and Mississippi this city issued bonds to the amount of \$550,000, and exchanged \$250,000 for stock, and \$300,000 for third mortgage bonds.³ Norwich made two loans of \$100,000 each to the Norwich and Worcester. One was secured by a mortgage upon the franchise and income of the road, and the other upon 1500 shares of stock as collateral.⁴

Local subsidies have also been given in the form of donations. In its grant of authority the legislature may determine whether aid shall be by way of donation,

Donations

or it may leave the question to be determined by the local government.⁵ Thus acting under the provision of a New Hampshire law, the town of Keene voted a subsidy equal to three per cent of its valuation to the Manchester

and Keene, expecting no return except the incidental benefits arising from increased transportation facilities.⁶ Center township, Indiana, in 1870 voted a donation to the Indiana and Illinois Central upon condition that the shops of the company be located at that point.⁷

Many minor local gratuities have been given. Charleston appropriated money for the construction of the experimental railroad built in one of the squares of the city to demonstrate the mechanical practicability of the projected line to

¹ Cary, *Organ. and hist. of the Chicago, Milwaukee, and St. Paul railway*, 51.

² *Ibid.*, 14-5.

³ *Ibid.*, 84.

⁴ Caulkins, *Norwich*, 532.

⁵ Elliott, *Law of railways*, II, 1169; Rorer, *Law of railways*, I, 447-52.

⁶ *Perry v. Keene*, 56 N. H., 514.

⁷ *Board of commissioners of Marion county v. Center township*, 105 Ind., 422.

Hamburgh.¹ Savannah paid the expenses of the first survey upon the route of the Central railroad of Georgia.² Many towns, particularly throughout the West, have donated sites for stations and terminals. The Cairo and Fulton received 885,320 acres of county land grants in Missouri in 1857-8. Five counties took stock in this road, and paid

for their subscriptions \$419,000 in land at one dollar an acre.³ San Francisco received authority in 1863 to issue bonds in exchange for Central Pacific and Western Pacific stock, but the subscription was prevented by opposition in the courts. Additional legislation was obtained in 1869, and a compromise made with the railroad by which the subscriptions were changed to donations of \$400,000 to the Central Pacific and \$200,000 to the Western Pacific.⁴ La Crosse issued \$50,000 of bonds to the Southern Minnesota, and "other donations" were made by municipalities along the line to an aggregate of \$148,000.⁵

Saline county, Illinois, changed to a donation its subscription of \$100,000 to the Cairo and Vincennes. Similar action was taken by Alexander county.⁶ Arrangements were also affected between Santa Clara county and the San Francisco and San José railroad, by which the railroad company was released from \$100,000 of obligations on condition that the line be extended thirty miles further to Gilroy.⁷ Otoe county, Nebraska, gave \$40,000 in bonds to the Council Bluffs and St. Joseph railroad in 1866, and \$150,000 to the Burlington and Missouri River railroad in 1869.⁸

¹ *Charleston Observer*, February 16, 1828.

² Avery, Georgia, 632.

³ Million, 237, 242-3.

⁴ Central Pacific Railroad Company. Statement made to the senate committee of the Nevada legislature (1865); Bancroft, California, VII, 558.

⁵ Cary, 163.

⁶ Ashcroft's railway directory for 1868: 6-7; from *Cairo Democrat*.

⁷ Ibid.; from *San Francisco Bulletin*.

⁸ Railroad company v. County of Otoe, 16 Wallace, 667.

CHAPTER XIII

STATE AID TO PRIVATE COMPANIES

THE policy of state aid was adopted as a necessary substitute for direct state funding of railroad construction. At the time railroads were introduced the financial condition of the states had been weakened, in some instances by banking ventures, but generally through ill-advised participation in the construction of public works.¹ There was, in consequence, little to favor the assumption of new obligations for works of similar nature and of unknown value and extent. At this time, also, ideas of corporate control were rudimentary, and the principle of limited liability to the holder of corporation stock was yielded grudgingly by legislators. The demand for capital for railroad construction was, moreover, far beyond the ability of individual capitalists or associations of capitalists to supply. In such a situation the necessity for supplementing the activity of individuals to provide capital for railroad construction seemed hardly open to argument. The most natural method of aid was to take a proprietary share in the associations or corporations organized for undertaking the new ventures.

SUBSCRIPTIONS TO CAPITAL STOCK

First of its kind was the subscription of Maryland to \$500,000 of stock of the Baltimore and Ohio in 1828.² This was followed in 1836 by a subscription of Maryland \$3,000,000, which was conditioned upon the payment of six per cent dividends, with the provision that

¹ *Ante*, p. 96 et seq.

² *Niles*, XXXIV, 17.

all excess earnings should be credited to the individual stock holders;¹ — one of the first issues in this country of preferred stock. In 1833 the state also took \$500,000 of the stock of the Washington Branch of the Baltimore and Ohio, having first exacted the requirement that an equal subscription be obtained from other sources, and a bonus of one fifth of gross receipts.² The second subscription to the Baltimore and Ohio was payable in money to be raised from the sale of six per cent currency bonds, which were required to be offered first in Europe. To provide a sinking fund for interest it was required that the bonds must be sold at a net premium of twenty per cent. These terms proved impracticable, and sterling bonds which bore five per cent interest were substituted. An amount of bonds equal to \$3,200,000 was issued directly to the company in payment of the state subscription and interest charges, a guarantee of principal and interest being exacted from the company. When efforts were made to dispose of these bonds in London, the market for securities was unsettled, and sales were impossible except at prices ruinous to the credit of both the company and the state. An arrangement was finally effected with the Barings.³ Maryland also made small subscriptions to the stock of the Baltimore and Susquehanna, the Annâpolis and Elkridge, and the Eastern Shore railroads.⁴ Delaware, in 1852, subscribed \$180,000 to the New Castle and Frenchtown Turnpike and Railroad company.⁵

Virginia was conspicuous among the states which subsidized railroad construction by means of stock subscriptions. It early adopted the policy of taking three-fifths of the stock of railroads within its borders

¹ *Amer. Railroad Jour.*, V, 658.

² Bowen, *Rambles in the path of the steam horse*, 72.

³ *Ibid.*, 76-8.

⁴ Hanna, *Financial hist. of Md.*, 94.

⁵ Message of William H. Rose, Senate Journal, 1853: 9.

when the remainder of the capital had been subscribed. To the roads constituting the Chesapeake and Ohio the state subscription was over \$5,000,000. This does not include the amount expended upon the Blue Ridge railroad and tunnel, which was about \$1,750,000. The subscription of the state to the Virginia and Tennessee was over \$3,000,000; to the Manassas Gap, over \$2,000,000; to the Richmond and Danville, \$1,800,000; to the Norfolk and Petersburg, \$1,500,000; and to the Alexandria, London, and Hampshire, \$1,000,000. From a report to the Virginia senate in 1878 it appears that the amount of aid granted to railroads by this state prior to the Civil war was over \$21,000,000, of which \$1,640,000 was for railroads now beyond the boundaries of the state.¹

Georgia, until after the Civil war, was opposed to a general system of aid to internal improvements, preferring to limit subsidies to specific railroads. In the charter of the Monroe railroad the state offered to take one-fourth of the stock

Georgia whenever outside subscriptions should be received for half of the capital, but it was provided that the state subscription should be limited to \$200,000. These conditions were fulfilled, and the subscription made in 1842.² In 1867 a state subscription to \$1,000,000 of Atlantic and Gulf stock was completed,³ but the stock was declared worthless in 1889.⁴ One instalment of \$50,000 of this subscription was paid in cash.⁵

Louisiana Louisiana in 1853 adopted a general system of aid to railroads within the state, providing for subscriptions to one-fifth of the capital stock.⁶ Prior to the Civil war, stock to the amount of \$483,000 was taken

¹ Report of the senate committee on finance relative to the public debt, 2-4. (1878.)

² Message of Charles J. McDonald, House Journal, 1843: 20-1.

³ Comptroller's report, 1869: 7.

⁴ Ibid., 1890: 85.

⁵ Message of Joseph E. Brown, House Journal, 1860: 8-9.

⁶ L. 1853, no. 231.

in the New Orleans and Nashville; the Mexican Gulf, \$1,000,000; ¹ the New Orleans, Jackson, and Great Northern, \$884,000, the New Orleans, Opelousas, and Great Western, \$650,000; the Vicksburg, Shreveport, and Great Western, \$298,000; and the Baton Rouge, Gross Tête, and Opelousas, \$160,000. A subsequent subscription of \$2,500,000 was made to the New Orleans, Mobile, and Texas.²

North Carolina in 1836 agreed to take two-fifths of the stock of the Wilmington and Raleigh when the rest of the stock should be subscribed and one-fourth paid in; ³ and under this act the state received \$500,000 of stock.⁴ In 1854 the state agreed to take two-thirds of the \$1,800,000 capital stock of the Atlantic and North Carolina. Under a similar agreement it also took \$4,000,000 of the stock in the Western North Carolina and \$2,000,000 in the North Carolina. When later the capital stock of the North Carolina was increased by \$1,000,000, the new stock was taken by the state, which thereby acquired a three-fourths' interest.⁵ Other railroads aided through state subscriptions to stock were the Wilmington, Charlotte, and Rutherford, ⁶ and the Cape Fear and Yadkin.⁷

Many of the South Carolina railroads were aided by state subscriptions to capital stock, but usually in small amounts. To the Blue Ridge railroad, however, was subscribed \$1,310,000.⁸ The state also subscribed \$800,000 to the stock of the Louisville, Cincinnati, and Charleston, and advanced \$200,000 in cash.⁹

¹ Auditor's report, 1865: 32-4.

² Ibid., 1879: 278.

³ L. 1836, c. 22.

⁴ Weaver, Internal improvements in N. C., 83-4.

⁵ Vernon, Amer. railroad manual, 1873: 319-22.

⁶ Treasurer's report, 1870: 45.

⁷ Message of Thomas J. Jarvis, 1883: 13.

⁸ Comptroller-general's report, 1868: 29.

⁹ Report of the state board of agriculture, 1883: 646.

Part of the money received from the United States treasury at the distribution of the surplus revenue in 1837 was diverted to the payment of instalments upon the stock of this company.¹ In 1848 the state took \$75,000 of the stock of the Greenville and Columbia, and paid for it in stock of the South Carolina railroad at par.² In 1854 a subscription of \$270,000 of the stock of the Charleston and Savannah was paid in stock of the Wilmington and Manchester, the South Carolina, and the King's Mountain railroads.³ Similarly, when in 1863 the state subscribed to \$200,000 of the stock of the Coalfield railroad, payment was made in stock of the Cheraw and Darlington, and the North Eastern railroads.⁴

Two Tennessee railroads were granted subsidies in the form of state subscriptions. The Memphis and Lagrange exchanged \$207,500 of its stock for \$200,000 of state bonds; and the Hiawasse railroad disposed of \$651,000 of stock in return for an equal amount in bonds of the state.⁵ Kentucky subscribed to \$200,000 of the capital stock of the Lexington and Ohio.⁶

Alabama in 1850 appropriated half of its two per cent internal improvement fund, and the available part of its three per cent fund to the Alabama and Tennessee Rivers railroad in payment of stock, with the provision, however, that the sum to be derived from the latter fund should not exceed \$100,000.⁷ The stock obtained in this manner amounted to \$172,000 in 1869.⁸

Mississippi in 1854 granted to the New Orleans, Jackson,

¹ Bourne, Hist. of the surplus revenue of 1837: 107-10.

² Memorial of the Greenville and Columbia railroad to the general assembly. (1857.)

³ Annual report, 1858.

⁴ Comptroller-general's report, 1858: 40.

⁵ The state debt. Report of the committee appointed to investigate it, 13-4. (1879.)

⁶ L. 1838, c. 857.

⁷ L. 1849-50, no. 94.

⁸ Auditor's report, 1869: 34-5.

and Great Northern in the form of subscriptions to stock, one-third of the money in the internal improvement fund. An act passed in 1857 provided for similar aid from the Chickasaw school fund.¹ Mississippi and Arkansas
 Arkansas in 1861 granted the proceeds of sales of swamp lands to the Mississippi, Ouachita, and Red River, the Cairo and Fulton, and the Northwestern Border railroads, and took stock in return.²

Few Northern states gave aid to railroads in the form of subscriptions to stock. Massachusetts, however, in 1836 authorized the Western railroad to increase its capital stock from \$2,000,000 to \$3,000,000, and took the new issue of stock on state account.³ Massachusetts

Prior to 1837 Ohio had granted aid to railroads in special cases, but in that year a general act was passed, promising a state subscription of one dollar for every other subscription of twice that amount to the stock of Ohio railroads in the state.⁴ In the three years in which this law was operative the state subscribed to \$717, 515 of stock in six railroads.⁵

LOANS OF STATE CREDIT IN AID OF PRIVATE CORPORATIONS

The loan of credit unaccompanied by a subscription to stock was widely used as a form of state subsidy. This was effected by guaranteeing the bonds of a railroad, or by issuing bonds in exchange for railroad bonds. Almost invariably the statutes have required that such aid shall not be given without a lien upon the property of the subsidized railroad, but it has been decided that an express provision

¹ Message of Charles M. Waterman, mayor of New Orleans, in relation to the New Orleans, Jackson, and Great Northern railroad. (1858.)

² L. 1860-1, no. 108; Message of Isaac Murphy, 1866: 21-5.

³ L. 1836, c. 131.

⁴ L. 1836-7: 76; Curwen's stat. at large, I, c. 145.

⁵ Special report of the auditor of state on the condition of the several railroad companies to which the credit of the state has been loaned. (1843.)

in the statute is necessary to confer a lien in favor of the state. Of the states which adopted this form of aid, Massachusetts was probably most prominent. This was not because of the amount of aid which was given by this state, but because its rapidly increasing prosperity, and the strong financial condition of its railroads, was put forward as a weighty argument by the advocates of subsidies in other states. Loans aggregating \$11,290,000 were authorized by this state to eight railroads between 1837 and 1870. The recipients of these loans were: the Western, \$4,000,000; the Boston, Hartford, and Erie, \$3,600,000; the Troy and Greenfield, \$2,000,000; the Norwich and Worcester, \$800,000; the Eastern, \$590,000; the Boston and Portland, \$150,000; the Old Colony, \$100,000; and the Nashua and Lowell, \$50,000.¹ The Troy and Greenfield, however, failed after having received \$924,900 from the state.²

The state of New York in this manner gave aid to nine railroads to an amount, including interest, of \$8,206,591. The New York and Erie received \$6,217,097; the Ithaca and Owego, \$650,815; the Canajoharie and Catskill, \$380,000; the Hudson and Berkshire, \$303,797; the Auburn and Syracuse, and the Auburn and Rochester, \$200,000 each; the Schenectady and Troy, and the Tonawanda, \$100,000 each; and the Long Island, \$108,882. From sales and redemptions the state received a return of \$756,152.73.³

Michigan in 1837 and 1838 loaned \$100,000 to the Detroit and Pontiac, \$60,000 each to the Ypsilanti and Tecumseh and the Allegan and Marshall, and \$20,000 to the Palmyra and Jacksonburgh.⁴

¹ Derby, Argument in favor of a state loan to the Vermont and Massachusetts R. R. (1855); New York and New England R. R., Hearing before the committee on railroads. (1878.)

² Bullock, Hist. of the finances of Mass., 71.

³ Sterne, Proceedings of the N. Y. special [Hepburn] committee on railroads, I, 100-1. (1879.)

⁴ Treasurer's report, 1838 (in appx. to L. 1839), 270, 355.

Two Indiana railroads received loans of state bonds. To the Lawrenceburg and Indianapolis was issued \$221,000,¹ and to the Madison and Indianapolis, \$456,000.²

Minnesota in 1858 provided for loans to four railroads to an aggregate of \$5,000,000.³ Under this law the Minnesota and Pacific and the Minneapolis and Cedar Valley received \$600,000 each; the Southern Minnesota, \$575,000, and the Transit railroad, \$500,000, or a total of \$2,275,000.⁴ Defaults then necessitated foreclosure on the part of the state.⁵

Maryland aided the Baltimore and Susquehanna by a direct loan of \$1,879,000.⁶ In 1837 Delaware loaned \$110,000 for two years to the Wilmington and Susquehanna.⁷ It also loaned \$80,794 in state bonds to the Philadelphia, Wilmington, and Baltimore,⁸ \$170,000 to the Delaware railroad,⁹ \$200,000 to the Breakwater and Frankfort, and \$400,000 to the Junction and Breakwater.¹⁰

Virginia took \$130,000 of the bonds of the Hillsborough and Cincinnati, and \$300,000 of the Norfolk and Petersburg; and guaranteed bonds of the Virginia Central to the amount of \$100,000, and of the Richmond and Danville, \$200,000.¹¹

¹ Message of N. Noble, Senate Journal, 1836: 7.

² Message of James Whitcomb, House Journal, 1844: 19; Auditor's report, 1844: 40.

³ L. 1858: 9.

⁴ Message of Henry H. Sibley, 1859: 7. Auditor's report, 1860: 3.

⁵ Scott, Repudiation of state debts, 154.

⁶ Hanna, 94.

⁷ L. 1837, c. 127.

⁸ Message of William B. Cooper, House Journal, 1843: 11; House Journal, 1859: 204.

⁹ House Journal, 1879: 317.

¹⁰ Senate Journal, 1891: 784.

¹¹ Report of the auditor of public accounts, 1865: 31, 33.

As early as 1833 Kentucky guaranteed \$150,000 of the bonds of the Lexington and Ohio, and took a lien upon all the property of the road.¹

After first aiding railroads by stock subscriptions, and then by endorsement of bonds, Tennessee adopted the policy of issuing its own bonds to the railroads under the security of a mortgage. The plan adopted in the act of 1852 provided that any railroad with sufficient subscriptions to prepare the roadway for the rails should be entitled to receive state bonds to the extent of \$8000 per mile.² This amount was raised to \$10,000 two years later. Subsequently the length of the sections required completed before right to aid could be established was reduced from the twenty miles of the act of 1852 to ten miles.³ The railroad bonds endorsed by the state amounted to at least \$2,196,000,⁴ and \$28,351,000 of bonds were issued in the form of direct loans to railroads. This figure does not include the \$32,000 of bonds which were issued to the Louisville, Cincinnati, and Charleston, and returned, or the \$851,000 of bonds which were issued in payment of stock subscriptions in the Hiawasse and the Memphis and Lagrange railroads.⁵

Missouri, in acts passed between 1851 and 1859, provided for a system of loans to railroads accompanied by statutory liens upon the property. Altogether this state issued \$19,201,000 of bonds to the Missouri Pacific, the Hannibal and St. Joseph, the North Missouri, the St. Louis and Iron Mountain, the Platte County, and the Cairo and Fulton railroads; and guaranteed bonds of the Southwest branch of the Pacific to the extent of \$450,000.⁶

¹ L. 1832, c. 226; 1838, c. 857.

³ Phelan, Tennessee, 290-2.

² L. 1851-2, c. 151.

⁴ Comptroller's report, 1868: 53.

⁵ The state debt. Report of the committee appointed to investigate it, 6, 13-4. (1879).

⁶ Million, State aid to railways in Mo., 232-7.

The Arkansas legislature in 1868 declared in favor of a policy of state aid to railroads, and referred the matter to the people by whom it was approved at a general election. In consequence state bonds were issued to the Memphis and Little Rock, the Arkansas Central, the Little Rock, Pine Bluff, and New Orleans the Little Rock and Fort Smith, and the Mississippi, Ouachita and Red River to the amount of \$5,350,000. Upon these bonds \$406,830 of interest had been paid and \$1785 was due when in 1879 the entire railroad debt was repudiated.¹

After the Civil war Louisiana adopted the plan of lending state bonds to railroads under security of a second mortgage. Three roads received aid in this manner, — the North Louisiana and Texas, \$1,122,000; the New Orleans, Mobile, and Texas, \$875,000; and the New Orleans, Mobile, and Chattanooga, \$750,000.²

While in Alabama the legislature spent much time in the discussion of railroad subsidies, the combination of a determined governor and inferior credit prevented action until 1856, when laws were passed granting loans to the Alabama and Tennessee Rivers, and the Memphis and Charleston railroads. These laws were passed over the veto of the governor, but before further action could be taken they were repealed.³ Under the provisional government, an act was passed in 1867 which authorized the endorsement of railroad bonds to an amount of \$12,000 per mile upon completed twenty-mile sections. The first reconstruction legislature increased the endorsement to \$16,000, and except for the first section reduced the required length of completed sections to five miles. Provision was also made for aid for twenty miles beyond the boundaries

¹ Auditor's report, 1880: 219.

² Auditor's report, 1879: 278. In *Ibid.*, 1874, statement "G," the last two items are transposed.

³ Martin, *Internal improvements in Ala.*, 72-9.

of the state. As security, the state was to take a first mortgage upon the property. The bonds of ten railroads were endorsed under these laws to an amount of \$16,751,000. The endorsements of the bonds of the Alabama and Chattanooga aggregated \$5,300,000; the South and North Alabama, \$4,026,000; the Mobile and Montgomery, \$2,500,000; the Montgomery and Eufaula, \$1,280,000; the Mobile and Alabama Grand Trunk, \$880,000; the Selma, Marion, and Memphis, \$765,000; the Selma and Gulf, and the Savannah and Memphis, \$640,000 each; the East Alabama and Cincinnati, \$400,000; and the New Orleans and Selma, \$320,000.¹ By special enactments in 1870 a direct loan of \$2,000,000 was made to the Alabama and Chattanooga, secured by a lien upon the lands of the company, and one of \$300,000 to the Montgomery and Eufaula.² Bonds were also issued to the South and North Alabama to the amount of \$732,000; to the Mobile and Alabama Grand Trunk, \$220,000; and to the Savannah and Memphis, \$204,000, in exchange for \$5,103,000 of endorsed bonds. This was in accordance with an act of 1875 authorizing the governor to issue state bonds at the rate of \$4000 per mile to such railroads as would surrender endorsed bonds.³

State railroad aid in Georgia after the Civil war was in the form of endorsement of bonds, though in the case of the Brunswick and Albany, \$2,350,000 of bonds of the road were exchanged for \$1,880,000 of bonds of the state.⁴ First mortgage bonds of this road were also endorsed to the amount of \$3,330,000. Other endorsements were: the Macon and Brunswick, \$2,550,000; the Bainbridge, Cuthbert, and Columbus, \$600,000; the South

¹ Fleming, Civil war and reconstruction in Ala., 604.

² Message of William H. Smith, 1870: 6; Auditor's report, 1873: 109.

³ Martin, 85.

⁴ Wooley, Reconstruction of Ga., 103.

Georgia and Florida, \$464,000; the Alabama and Chattanooga, \$194,000; the Cartersville and Van Wirt, \$275,000; the same road, under the name of "Cherokee," \$300,000;¹ the North and South railroad, \$240,000; the Memphis Branch railroad, \$34,000;² and the Northwestern railroad, \$260,000.³

In 1875 Florida established a board of trustees of internal improvements, which was instructed to pay interest upon the bonds of certain railroads in default of payment by the companies themselves, and it was provided that all such payments by the trustees should be represented by railroad stock.⁴ Under this law endorsements were made upon bonds of the Pensacola and Georgia to the amount of \$1,220,000; the Tallahassee railroad, \$206,000; the Florida railroad, \$1,616,000; and the Florida Atlantic and Gulf Central, \$555,000, — a total of \$3,597,000.⁵ In 1869 the legislature changed the plan of aid, and offered bonds to the amount of \$16,000 per mile in exchange for first mortgage bonds of the railroads. Under this plan state bonds amounting to \$4,000,000 were issued to the Jackson, Pensacola, and Mobile.⁶

As early as 1837, when the Louisville, Cincinnati, and Charleston project was being agitated, South Carolina offered to endorse bonds of the company to the amount of \$2,000,000.⁷ Before and after the Civil war this policy of endorsement was continued until the liability of the state on this account amounted to \$8,787,608. The beneficiaries were: the Blue Ridge of South Carolina, \$4,000,000; the South Carolina, \$2,093,312;

¹ Comptroller-general's report, 1874: 12.

² Ibid., 1876: 15.

³ Message of Alfred H. Colquitt, Senate Journal, 1878: 32.

⁴ L. 1854-5, c. 610.

⁵ Message of W. D. Bloxham, 1883: 11.

⁶ Message of Marcellus L. Stearns, 1875: 10.

⁷ Stat. at large, VI, 571.

the Greenville and Columbia, \$1,426,546; the Charleston and Savannah, \$505,000; the Savannah and Charleston, \$245,750; the Spartanburg and Union, \$350,000; the Laurens railroad, \$75,000;¹ and the Northeastern railroad, \$92,000.²

North Carolina in 1838-40 pledged the interest upon \$300,000 of the bonds of the Wilmington and Weldon, and principal and interest upon \$800,000 Raleigh and Gaston bonds.³ Bonds were issued in exchange for bonds of the Wilmington, Charlotte, and Rutherford, the Williamston and Tarboroough, and the Chatham railroads.⁴

STATE ENDORSEMENTS OF CITY BONDS

There have been instances where the railroad subsidy bonds of a city have received a state guarantee. Virginia guaranteed \$323,500 of the bonds of the city of Petersburg, issued in aid of the South Side railroad, and the \$500,000 of bonds which Wheeling issued to pay for stock in the Baltimore and Ohio.⁵ Tennessee endorsed the \$350,000 of bonds which Memphis issued in payment of stock in the Memphis and Little Rock, and took in return a lien upon the city stock and also upon the iron and equipment of a division of the road.⁶ The state, however, refused to stand responsible for the endorsement when it appeared that no record of any mortgage in its favor existed in Arkansas.⁷

¹ Proceedings of the tax-payer's convention of S. C., 126-7. (1871.)

² Comptroller-general's report, 1870: 72.

³ Weaver, 83-9.

⁴ Treasurer's report, 1870, Table "D"; Message of W. W. Holden, 1869: 2; Message of T. R. Caldwell, 1873: 17.

⁵ Report of the auditor of public accounts, 1865: 31.

⁶ Message of John C. Brown, Senate Journal, 1875: 52.

⁷ Message of James D. Porter, 1877: 13.

LOANS FROM SPECIAL FUNDS

By an act passed in 1856 Texas constituted the governor, comptroller, and attorney-general a board of school commissioners, and authorized them to loan to railroads at six per cent the five per cent redemption bonds held in the special school fund. These loans were to be made at the rate of \$6000 per mile in sections of ten miles, after the completion of a single section of twenty-five miles. By an amendatory act of 1858 the length of the additional sections was reduced from ten to five miles. The act applied to the main line only, and specifically excepted all railroads which received a larger land grant than sixteen sections to the mile. Before a loan could be made an engineer named by the governor was required to pass upon the construction. The railroads in return were to issue their mortgage bonds to the state and pay annual dues toward a sinking fund.¹ Six railroads received loans from this fund: the Houston and Texas Central, \$450,000; the Washington County, \$66,000; the Galveston, Houston, and San Antonio, \$240,000; the Texas and New Orleans, \$430,500; the Texas and Pacific, \$150,000; and the Houston Tap and Brazoria, \$300,000, — a total of \$1,816,500. To this has been added \$979,067 interest charged as principal, making a grand total of \$2,795,070.²

States are not money lenders; but many railroads have been aided by means of direct advances of money, whether from the general treasury or from a special fund. While some states used the money belonging to their internal improvement funds in payment of subscriptions to railroad stock, Alabama distributed it in the form of loans. This state made a loan of \$858,363 from the three per cent fund at six per cent, to six

Other South-
ern states

¹ L. 1856, c. 103; 1858, c. 54.

² Comptroller's report, 1896: xi.

railroads receiving bonds of these companies as security. From the two per cent fund similar loans were made to three railroads to the amount of \$449,521. By an act of 1868 the South and North Alabama railroad was made sole beneficiary of both funds, and the governor surrendered to that company \$691,789 of the railroad bonds held as security by the state.¹ Arkansas in 1861 passed an act providing for a loan of \$100,000 out of the five per cent internal improvement fund to the Memphis and Little Rock railroad. As at that time there was no money to the credit of this fund, a warrant drawn on the fund was paid to the company out of the money in the treasury applicable to ordinary expenditures.² As early as 1829 South Carolina passed a law directing the comptroller upon application by the South Carolina Canal and Railroad company to loan \$100,000 in money from the treasury, and receive in return a mortgage upon all the property. This was to continue seven years and bear five per cent.³ Kentucky in 1839 passed a law providing that the board of internal improvements should lend the Lexington and Ohio on the bonds of the city of Louisville a sum of not over \$20,000 for twenty-five years at six per cent for the purpose of finishing a bridge across the Kentucky river.⁴ Alabama in 1852 loaned the Alabama and Mississippi \$100,000, for five years, without interest, and for an equal period at five per cent.⁵

SUBSIDIES IN THE FORM OF EXPENSES OF SURVEY

A form of state subsidy which was not uncommon was the grant of money for the expenses of a preliminary survey. In 1836 Maine agreed to pay the necessary incidental expenses, not to exceed \$5000, for a survey of the Belfast

¹ Auditor's report, 1869: 28-35; Martin, 68-72.

² Auditor's report, 1864-5-6: 22-3.

³ Stat. at large, VI, 408.

⁴ L. 1839, c. 1400.

⁵ L. 1851-2, c. 135.

and Quebec, but with the provision that the amount advanced should be returned within three years after the completion of the road.¹ South Carolina bore the cost of the first survey of the route between Charleston and Hamburgh,² and appropriated \$10,000 for a survey of the line from Charleston to Cincinnati.³ Tennessee appropriated \$15,000 for the survey of a railroad route from the Mississippi to the eastern boundary of the state.⁴ New York made a similar appropriation for a preliminary examination of the route of the New York and Erie.⁵ Vermont offered to contribute \$3000 toward the expenses of a survey of the Connecticut River railroad upon condition that enough be raised in addition to insure the carrying out of the examination.⁶

OTHER FORMS OF STATE AID

Instances may be cited also where legislatures, without granting any direct aid from the state, have contributed to the success of railroad projects. As has been already shown in another connection, Pennsylvania, in re-chartering the second United States bank, required that institution to subscribe \$200,000 to the stock of the Baltimore and Ohio, \$200,000 to the Williamsport and Elmira, \$100,000 to the Cumberland Valley, and \$20,000 to the Warren and Pine Grove railroads.⁷ Arkansas in 1869 passed a law providing that whenever any person whose land had been forfeited for failure to pay taxes should donate or subscribe the property in aid of construction of any railroad, the claim of the state would be surrendered.⁸ North Carolina turned over

¹ McCrea, Taxation of transportation companies, Report of the industrial commission, IX, 1008.

² McMaster, United States, V, 144.

³ Stat. at large, VIII, 406.

⁴ *Jour. of the Franklin Institute* (n. s.), XX, 260. (1837.)

⁵ Mott, Between the ocean and the lakes, 23-4.

⁶ *Springfield Gazette*, November 30, 1836.

⁷ L. 1835-6, no. 22.

⁸ L. 1868-9, no. 65.

the state convicts upon favorable terms to the Cape Fear and Yadkin railroad, which was constructed entirely by their labor. The same favor was also extended to the Western North Carolina, and other roads.¹ The claim of Maine and Massachusetts against the United States for indemnity for lands assigned to settlers on disputed territory under provisions of the treaty of Washington was assigned in 1868 to the European and North American railway. This amounted to \$32,688 from Massachusetts and \$113,906 from Maine.² This railway in 1870 also received a donation in money amounting to \$678,362, which was the amount of the payment by the United States of the claim of Massachusetts for advances made in the war of 1812. Maine had become one-third owner of the claim of 1820, and both states assigned their interests in aid of the construction of this road.³ The Central Pacific received authority in 1864 to issue \$1,500,000 of seven per cent bonds upon which California agreed to pay interest for twenty years out of the proceeds of a special tax.⁴

STATE LAND GRANTS

The state of Maine, by acts passed in 1864 and 1868, authorized the transfer to the European and North American railway of all the public lands and timber between the Penobscot and St. John rivers.⁵ Title was passed in 1868, and the company came into possession of lands 600,000 acres in extent. Texas retained its public lands upon annexation to the United States,⁶ and in consequence had full authority in the matter of granting lands in aid of railroads. To some of its earliest railroads the state granted

¹ Message of Thomas J. Jarvis, 1881: 24; 1883: 13; 1885: 19.

² Message of Joshua L. Chamberlain, 1869: 16.

³ U. S. Stat. at large, XVI, 197.

⁴ L. 1863-4, c. 320.

⁵ L. 1864, c. 401; 1868, b. 604.

⁶ Address of Sidney Perham, 1872: 9; see also Tenth census, IV, 566.

eight sections of land per mile, but by an act passed in 1854 a general system of land grants was inaugurated.¹ By the terms of this act any railroad which would survey the lands at its own expense and construct twenty-five miles of road was entitled to receive from the state a grant of sixteen sections for every mile. Other acts were passed making further grants of land in aid of railroads, but in 1882 the system was abolished. By that time 32,400,000 acres had been granted to railroads and other internal improvements, chiefly railroads.² This is an area equal to the size of New York or Alabama, and half as large as Oregon or Colorado.

Various states have turned over to railroads lands which were originally granted by congress, but without specific directions as to the manner of their use. Florida donated much of the swamp and overflowed lands in the state to railroads, as in the case of the Suwanne and Inland, which in its charter was given all such lands within six miles of its line.³ Minnesota granted swamp lands to the St. Paul and Pacific in aid of a branch from St. Paul to Winona, and also to the Lake Superior and Mississippi railroad.⁴ Arkansas as late as 1897 passed a law donating one thousand acres of swamp and forfeited lands per mile to the Mississippi River, Hamburg, and Western, and to the Springfield, Little Rock and Gulf.⁵ California granted to the Central Pacific and Southern Pacific railroads, sixty acres of water-front land in San Francisco.⁶ To encourage the construction of the railroad from the mainland to Key West, Florida in 1905 granted a right of way four hundred feet wide through the lands belonging to the state.⁷

¹ L. 1853-4, c. 15.

² Data supplied by the commissioner of the general land office of Texas.

³ L. 1870, no. 49.

⁴ Message of Henry A. Swift, 1864: 6.

⁵ L. extra sess., 1897, no. 39.

⁶ Haymond, Central Pacific railroad, 87.

⁷ L. 1905, no. 224.

CHAPTER XIV

THE REACTION AGAINST STATE AND LOCAL SUBSIDIES

ANY attempt to state the amount of public subsidies to transportation companies must in the nature of the case prove a failure. The fact that a certain amount of aid was voted in favor of any railroad indicates nothing as to the actual receipts of the road from that source. Often the companies failed to qualify, and so received no aid. When subsidy bonds were received they were usually sold at a discount; but some states repudiated their bonds before their corporate beneficiaries had opportunity to dispose of them. Even roughly to approximate the gains accruing to any railroad company from the exercise of special privileges would be obviously impossible, but such privileges were none the less productive.

So, too, it may be said that it is impossible accurately to determine the cost or amount of losses to states and localities through failure of the companies to meet their obligations. Some railroads paid in full their obligations to states and municipalities, but others compromised, and many became insolvent. Upon foreclosure the amount realized by the state or local authorities on bonds secured by mortgage has usually been small when compared with the original outlay. To determine the net loss resulting from the granting of direct aid to railroads is a task for the special student. The enabling acts are misleading. Much aid authorized has never been granted; some aid has

No way to
measure the
benefits from
state and local
subsidies

Impossible to
determine
amount of
losses resulting
from the sys-
tem

been granted and the public liability definitely established in cases where the railroad has never been built; and there have been too many instances where grants have been in excess of the amounts allowed by the enabling acts, or without any enabling act at all.

Official statements of public aid to railroads are rarely intelligible, frequently incomplete, and too often obviously inaccurate. In some instances disputes have arisen between the state auditor and the governor over the nature and amount of the public railroad debt. Auditors' reports rarely contain sufficient text to make their statements clear. Their inexact use of such definitive terms as "contingent," "endorsement," and "loan" is in itself sufficient to cause confusion; and changes in their statements sometimes appear from year to year with nothing to indicate whether they are corrections or errors. Finally, in many states the subsidy problem has been complicated by refunding measures, and in some by compromise or repudiation.

Indefiniteness
of reports

CONCLUSIONS WHICH MAY BE ACCEPTED

There is, however, evidence sufficient to show that the policy of granting subsidies to railroads was not only unnecessary and productive of extravagance and fraud,¹ but also that it was of questionable value to the companies them-

¹ "Ce system d'assistance, praticable d'ailleurs seulement par les États assez peuplés et assez riches pour pouvoir retirer de l'impôt de quoi faire face à leurs engagements, paraît en definitive avoir eu d'assez mediocres resultats. Si, dans certains États prospères et bien administères, il a permis d'établir plus tot des lignes d'une importance réelle, qui sans cela, se seraient fait attendre plus longtemps, il a souvent aussi donné lieu aux plus grande abus, par suite du défaut de contrôle des pouvoirs publics sur les compagnies, et parfois de la connivence de certains membres des legislatures avec des speculateurs, pour lesquels les chemins de fer n'étaient qu'une matière à operations de bourse." — La Voinne et Pontzen, *Chemins de fer en Amérique II*, 417.

selves. It has been urged by some that the corporations as a whole would have been better capitalized and better managed if they had been left entirely to private investment interests. If some lines were built earlier than would have been possible without public aid, many others were constructed over routes which could not furnish enough traffic to support them. This not only involved a great loss of public money, but it was in large part responsible for much of the subsequent controversy over the matter of rates.

Subsidies productive of extravagance and fraud

Subsidies attracted financial adventurers to the work of railroad construction, and many companies were organized primarily to obtain the valuable bonuses offered. Lawyers were hired and sent in droves to the legislatures and to congress to solicit favors. But states with unoccupied lands were desirous of opening them to settlement, and those who opposed the granting of public aid to this end were not infrequently regarded as reactionary, and subjected to abuse. The awakening came, however. Said a governor of Texas: "The experience of Texas in subsidizing public works has not been very satisfactory. We have invested in this way (including principal and interest due thereon) near two and three-fourths millions of specie, or its equivalent, and upwards of five millions of acres of our best lands (worth fully ten millions more in specie), and we have somewhat less than five hundred miles of railroad, which the state has mainly built (but does not own or control), to show for it. But this is not all. Every legislature and every convention of the people since these works received subsidies, has been beset by applications (sometimes not unaccompanied by the odor of corruption) for relief from the force and effects of the contracts under which the grants were made, while the restrictions placed upon the beneficiaries of these grants to secure the safety and convenience of the people and mod-

Subsidies attracted financial adventurers

gress to solicit favors. But states with unoccupied lands were desirous of opening them to settlement, and those who opposed the granting of public aid to this end were not

erate rates of fare and freight have been wholly disregarded.”¹

In some instances there was so little appreciation of the responsibilities attending the granting of aid that to all appearances repudiation was invited. The legislature of Arkansas passed over the governor's veto the act leading the faith of the state in aid of railroads. Commenting upon this action, the governor pointedly said:

Subsidies encouraged irresponsibility for use of funds

“Inasmuch as the state has had no credit in the money markets of the World for the last twenty-seven years, and no interest paid on her outstanding debt for that time, not even an effort to pay made, until now the interest is more than double the original debt, it does seem to me very reckless to offer to pledge the faith of the state so utterly lost by so long a failure to make any provision for the existing indebtedness.”²

PRACTICES WHICH SERVE TO ALIENATE FURTHER SUPPORT

Instances of abuse of the subsidy system could be cited by the score. A few will suffice. Under the Ohio law of 1837 the Ohio railroad received \$249,000 from the state. To obtain this sum it was necessary to show that twice that amount had been contributed by the stockholders. This was done by adding to the \$13,980 received in cash the subscriptions paid for in labor, materials, farms and town lots, and the donations of land for right of way. The lands were all taken at extravagant rates. The words of the report of the official investigation best describe the method of procedure:

Money obtained by misrepresentation

“The process of receiving these lands upon subscription constituted a very decided improvement upon the modern

¹ Message of Edmund J. Davis, Senate Journal 1870 : 18.

² Message of Isaac Murphy, 1868 : 7-8.

system of financiering. The lands were sold to the company by the owners, and general warrantee deeds executed for them. A credit was then given by the company for a payment of stock to the amount and stock certificates issued. . . . In many instances the owner remained in possession of the lands, offsetting the use and occupation of the same against the interest on his stock. In the great majority of cases, however, the lands were surrendered up to the company, and the stock certificates became an article in the market. After the lands had been reported to the Fund Commissioners as a basis of a loan of credit, upon the grounds that they were 'lands purchased for the use of the road,' the company commenced the process of selling them for the certificates of stock issued for their purchase. . . . The result of the operation, if left to work itself out, will be that after the company has bought lands at excessive valuations, to the amount of more than half a million of dollars, and drawn upon them from the state \$249,000 in state stocks, the lands will all be disposed of to the original or other owner, and the company have nothing for itself, or as a security to the state, than the six per centum stocks originally issued for the purchase. The capital stock would exist only in name, and the wholesale plunder of the state treasury would be complete. Nearly, if not quite all these sales of lands by the company were at prices less than the purchase."¹

Alabama required the construction of twenty miles as a condition precedent to the endorsement of railroad bonds. The Alabama and Chattanooga evaded this provision of the law by purchasing the necessary mileage from the Northeast and Southwest Alabama, which was never properly equipped; and the first twenty-mile section out of Chattanooga upon

Mileage obtained by lease instead of construction

¹ Special report of the auditor of state on the condition of the several railroad companies to which the credit of the state has been loaned, 17-9. (1843.)

which endorsements were obtained was only rented from another corporation which had already received an endorsement from Georgia.¹ An investigation finally disclosed the fact that the bonds of this company had been endorsed \$500,000 in excess of the amount to which by any reasonable interpretation of the law it could be entitled.² Similar conditions existed in Georgia.

A committee of the Tennessee legislature, reporting in 1879 upon the state debt, said of the results of the state's connection with internal improvement corporations: "The facts of the situation in this case, independent of the testimony, show all along the line a disposition on the part of many corporations to evade the strict provisions of the law designed to protect the State, and to get as much as possible from her with as little outlay as possible on the part of the companies."³

State subsidies stimulated similar aid from the local governments; for counties and towns would readily vote subscriptions when shown that their aid would enable the railroad to obtain further aid from the state. Like other forms of subsidy, local aid to railroad construction was not without its abuses. There was usually some deception employed to obtain the necessary votes, and in many cases the question was decided by the votes of those who paid but little or nothing in taxes. Towns were often misled as to the location of the route, and farmers were deluded by extravagant promises of increased values to their land and produce. The subject of local subsidies was ably discussed by Newton Booth, who as governor and United States senator proved himself one of the ablest men who have come out of the West. Booth had

**Evasions of
the law**

**Deception in
obtaining votes**

¹ Fleming, Civil war and reconstruction in Ala., 591.

² Message of Robert B. Lindsay, 1871: 11.

³ The state debt. Report of the committee appointed to investigate it, 15. (1879.)

led in the creation of an anti-subsidy sentiment in California, and he was on familiar ground when in a speech at San Francisco in 1879 he said:

"There was a time when it was the general feeling that all we wanted to usher in the millennial dawn in this State was railroad communication with the Atlantic, and that no sacrifice was too great to secure it. There was a time when counties and communities were bidding against each other for branches and connections. It was only as the evils of the system of building railroads by grants and subsidies developed themselves, its corruptions, wastefulness, and extravagance made manifest, that the people slowly awoke to the conviction that it was wrong; and not at once but by degrees came to the conclusion that if anyone wants to own a railroad he ought to build it — and any community that furnishes the money to build a road ought to own it — and that no man had the right to vote away the property of another for the benefit of a third. . . . The experience was not peculiar to this State. All through the Western and Southwestern States bankrupt towns and tax-ridden communities bear witness to the fact that the habit of voting subsidies was once as popular as it is now odious."¹

Booth's arraignment of the subsidy system was based upon several grounds. It was, he maintained, the most expensive method of railroad building, because a large part of each subsidy granted leaked away, and was not expended in payment for work done. Railroad builders were accustomed to ask that a town or county add to its grant the amount necessary to carry a bill through the legislature, and an additional amount to carry the election before the people. It was also unnecessary, because where there was promise of sufficient business, capital would always be attracted. To let the business bring the road without a public tax was the safer way. And

¹ Crane, Newton Booth of California, 231, 237.

it was unjust, because of the certainty in every case that some interests would be taxed which would not be benefited, and that often (as in the case of towns lying near, but not on the line), property would be taxed, the value of which would be impaired and possibly destroyed. And furthermore, the system was demoralizing, opening the door to corruption.¹ Sound or not, and in view of the evidence of abuse it is difficult to see upon what ground it may be challenged, this was the sort of argument which the opponents of subsidies advanced.

RESTRICTIVE LEGISLATION

The reaction against state subsidies began soon after the years of depression following the panic of 1837, which had forced many states into financial delinquency; for it was seen that the states which were most seriously embarrassed were those which had been most lavish in their outlays to encourage the development of transportation routes, whether railroads or canals. Pennsylvania, Michigan, Maryland, Indiana, Illinois, Mississippi, and Louisiana were in dire straits, and in most cases one of the prominent causes of the difficulty was ill-advised participation in works of internal improvement.²

The Northern states were first to adopt protective measures. New York in its constitution of 1846 declared against the practice; though throughout the South the policy of state aid flourished most in the years of readjustment following the Civil war. To-day, over a score of state constitutions enjoin both the lending of state credit and the holding by the state of the stock of a corporation; a few forbid donations of any sort; and a majority make impossible any loan of state credit. But

**Reaction
against sub-
sidies**

**Constitutional
and statutory
provisions**

¹ Ibid., 186-7.

² Curtis, Debts of the states, *North Amer. Rev.*, LVIII, 123-37.

even after prohibitory laws had been enacted, the force of their prohibitions was negated. The manner in which this was accomplished is thus shown by Doctor H. C. Adams:

"The States, although prohibited by their organic laws from rendering direct assistance, yet discovered a way of granting material aid. The minor civil divisions were not included in the disabling act of the new or amended constitutions. Being creatures of the legislatures, their powers were determined by the legislatures, and it was no difficult task to obtain for them the authority to issue bonds in favor of private corporations. . . . Nor did this pernicious tendency stop with the issue of railroad bonds. Credit-financing as a part of local administration became familiar to the people, and it was but a step to the conclusion that other enterprises more nearly of a private nature might rightfully receive the assistance of the local treasuries. But it may be asked: What right had a legislature to authorize a township or a city to do that which by public law it is itself prohibited from doing? This is a question that has been raised in many of the States. . . . but in all, with the exception of Michigan, the courts were subservient to the manifest wish of the people, and supported laws granting to municipalities the power to issue railroad bonds. . . . The relation here traced between the restrictions imposed upon the States by their constitutions, and the issue of local bonds for granting assistance to railroads . . . is found in the legal thinking of the country, and makes its appearance in many cases brought before the courts, which involve the validity of railroad bonds. . . . It is not, then, an accident that the expansion of local credit took place almost immediately after the States had been shoved off the stage of industrial action; indeed, one is warranted in the suggestion at least that had the States been free from the legal restrictions imposed upon them by their constitutions, the inferior governments would never have been thus forced to respond

to the popular clamor for a collection of capital by governmental agency." ¹

Naturally the first steps toward the abolishment of local subsidies were in the direction of restrictive legislation. A New York law declared that local contributions to railroad enterprises should be conditioned upon the consent of a majority of citizens, a list of whom was required in the office of the town clerk, and in 1872 by a general law prohibited all forms of local railroad aid. Illinois declared that counties in the state could not be held after 1880 for any aid which they had promised to railroads. Over half the state constitutions now forbid local aid of any sort; but some survivals are to be found. The Nevada constitution provides that no local government shall become a stockholder in any stock company, or lend its credit in aid of any such company except a railroad corporation.² Maryland allows counties to contract debt in the aid of railroad construction, and to loan their credit only when authorized by vote of the general assembly.³ Tennessee local governments may take stock and loan credit when authorized by a three-fourths vote of the people.⁴ Minnesota originally allowed municipal aid to railroads to the extent of ten per cent of assessed valuation, but the limit has been reduced to five per cent.⁵ As late as 1905 two Minnesota towns voted bonds in aid of the Duluth, St. Cloud, Glencoe, and Manketo railroad.⁶ Towns and counties of Nebraska are prohibited from subscribing to the stock of any corporation,⁷ but they may make donations to any work of internal improvement when the action is sanctioned by popular vote. The aggregate aid is limited to ten per cent of assessed valuation, unless by a two-thirds vote the people declare in favor of a contribution of fifteen per cent.⁸

¹ Adams, Public debts, 355-7.

² Art. VIII, sec. 10.

³ Art. III, sec. 54.

⁴ Art. II, sec. 29.

⁵ Art. IX, sec. 14b-15.

⁶ Auditor's report, 1905-6: 206.

⁷ Art. III.

⁸ Art. XIV, sec. 2.

CHAPTER XV

NATIONAL AID TO PRIVATE COMPANIES

By joint resolution, December 8, 1828, congress declared itself opposed to the holding by the United States of the stock of any canal or road company.¹ Yet within a month a petition was received for a subscription to the stock of the Baltimore and Ohio railroad.² Two months later a similar petition was received from the South Carolina Canal and Railroad company.³ In spite of favorable reports upon both petitions, no action was taken. Other petitions appeared from time to time well into the thirties; and some of the charters of the period contain provisions for the holding by the United States of a certain portion of the stock.

TARIFF REMISSION ON RAILS

A way was soon found in which congress could furnish aid to railroads. The capacity of iron plants in the United States at that time was small, and the output high in price. With this fact for an argument the early railroad promoters approached congress with a petition for the remission of customs duties on railroad iron. In March, 1828, the Baltimore and Ohio presented a memorial praying for relief,⁴ and in the tariff act of 1830 provision was made for the reduction of the duty to twenty-five per cent of means of a drawback upon the duties paid upon iron actually used for

¹ 20 cong. 2 sess., S. doc. v. 1, no. 6.

² 20 cong. 2 sess., H. ex. doc. v. 2, no. 48.

³ 20 cong. 2 sess., S. doc. v. 2, no. 91.

⁴ 20 cong. 1 sess., S. doc. v. 4, no. 140.

railroad purposes. On July 14, 1832, congress passed an "act to release from duty iron prepared for and actually laid on railways or inclined planes." This provided that when evidence should be presented to the secretary of the treasury that any rail iron imported for the construction of any railroad or inclined plane had been permanently laid, a drawback on the duty should be allowed; or if the duty had been actually paid it should be refunded.¹ This amounted to a reduction of from fifteen to twenty dollars per ton on the cost of rails, but the act did not apply to spikes, pins, or chains used in railroad construction.² The law remained in force over ten years, and during that time all our railroads were laid with British iron. The Walker tariff of 1842, however, imposed a duty of twenty-five dollars a ton upon all rails imported after March 3, 1843.³ The sum of \$5,989,992 was returned to the railroads under these laws.⁴

¹ Stat. at large, IV, 604.

² Ibid., V, 61.

³ Ibid., V, 551; Carey, Railroad question, letter to Schuyler Colfax, February 10, 1865.

⁴ Congressional globe, XIII, pt. II, app., 680. The amounts by years for the first eleven years were:

1831.....	6,847.90
1832.....	336,709.19
1833.....	202,210.70
1834.....	421,010.34
1835.....	529,529.79
1836.....	234,194.74
1837.....	407,517.05
1838.....	910,011.66
1839.....	672,376.86
1840.....	688,510.97
1841.....	391,264.64 (partial)
	<hr/>
	\$4,800,183.84

27 cong. 2 sess., H. doc. no. 265. See Haney, Congressional history of railroads, I, 132-51.

LAND GRANTS ¹

When the federal government came into possession of the unoccupied lands in the West through surrender of the claim of the seaboard states, its attitude toward these lands was that of an individual proprietor desirous of obtaining the largest possible returns from sales. Men of both parties looked to the public domain as a source from which might be derived revenues sufficient to pay the national debt, and warrant an ultimate reduction in taxes. To this end, the land policy of the government was changed from time to time with the hope of encouraging sales. At first contracts were made with large companies; later smaller parcels were offered, prices were reduced, and a system of credit was tried which in time was abandoned. With all these experiments, it was not until the thirties that there was any considerable increase in yield, and then in but a single year (1836) did the returns from this source exceed the customs receipts.

The final change in the land policy may be considered a part of the general change in popular opinion, favoring local as opposed to national activities. In Jackson's time the public lands came to be regarded as a bonus to settlement and internal development rather than as a primary source of revenue. When, therefore, railroads appeared as applicants for government aid, interests were in control which were favorable to the granting of subsidies in the form of lands. For such action, many precedents already existed. Even before the Revolution lands had been set aside as bounties for soldiers, for support of education, and for encouragement of internal improvements. The first continental congress provided for grants of lands to soldiers who would serve throughout the war, and similar rewards were offered during

**Change from
revenue to
developmental
basis**

¹ See Haney, I, 161-218.

the second war with England. Various other grants were made as aids to education, as rewards and pensions to individuals, and for other purposes. Beginning in 1802 with the admission of Ohio, all of the public land states received two, three, or five per cent upon the net yield of the sales of lands within their borders, for the furtherance of works of internal improvement. Public lands were often donated by the United States for the building of wagon roads and canals, and for the improvement of rivers. Owing to the spirit of localization, and the fear of strangling natural patronage, these grants were made indirectly through the states in the manner which later served as the model for the first railroad grants.

Thus the policy of federal aid to railroads through the donations of portions of the public domain was the outcome of no radical change of theory or method, but the result of a slow and cautious movement in the direction of effective aid within the limits of constitutional propriety, and conformable to political interests. Not only were there precedents which warranted the bestowing of land grants upon railroads, but after the financial crisis of 1837 and the consequent disrepute into which American ventures had fallen abroad, necessity dictated this as the only manner in which sufficient aid could be extended.

One other method would have been possible had it not been for the attitude toward the federal government which reflected itself in the acts of the administration. Congress had the right to make grants of money in aid of internal improvements, and it had the means of obtaining it; but it had come to be quite generally accepted by the time of Jackson's inauguration that such action would not be taken, and as before stated, the veto of the Maysville turnpike bill effectually put an end to that form of subvention. After the crisis of 1837, the states generally were unable to give adequate financial aid to satisfy local transportation demands. Several had

**Influence of
the crisis of
1837**

wrecked their treasuries in undertaking the construction of public works on state account, and as a matter of protection many had by constitutional inhibition prohibited their governmental agents from making such grants. The federal government was not permitted directly to finance internal improvements. With increasing taxation and the wrecking of state credit, popular sentiment had become set against further undertakings to be financed from the public treasury. Such were the changes in the attitude of the people toward the national and the state governments. The first was coincident with the development of an anti-national sentiment; the second resulted from the great depression and general insolvency following the crisis of 1837. In this view of the case, the practical necessity for land grants to railroads becomes apparent, though we may accept without reserve the conclusion reached by Doctor J. B. Sanborn that : "It seems quite possible that if this substitute for appropriations had not been at hand, the pressure on congress would have been strong enough to secure money instead of the land grants which were actually made."¹ But the lands were at hand, and the matter of their disposal was not so hopelessly befogged in abstractions of constitutional interpretation, evolved in support of the doctrine of

Land grant the means for further aid	state rights, as was the case with money grants. It is true that there were some who denied the authority for all congressional aid to in- ternal improvements, basing their opposition upon the theory that, so far as results were concerned, there is a practical identity in land grants and direct appropriations; but against their contention is the provision of the constitution that "Congress shall have power to dispose of, and make all needful rules and regulations respecting the territory or other property belonging to the United States." ²
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¹ Sanborn, Congressional grants of lands in aid of railways, 13.

² Ibid., 88.

The first congressional enactment providing for a land grant in aid of a railroad was passed March 2, 1833, when authority was granted to the state of Illinois to divert to the construction of a railroad the proceeds of a grant of land which had been made four years before for the benefit of the Illinois and Michigan canal. The state never availed itself of this privilege. Next in order was the granting to various railroad companies of rights of way through the public domain, together with sufficient land for station sites, and the timber and materials necessary for construction and repairs. The first grant of this sort was made March 3, 1835, for a line of railroad in Florida between Tallahassee and St. Marks.¹ Other acts similar in terms followed at intervals until August 4, 1852, when a general grant of right of way was conferred upon all railroads within certain territories,² and March 3, 1835, when the privilege was extended to all territories.³

Beginning in 1836, and again in 1838 and 1840, bills providing for grants of land in aid of railroads were introduced in congress. In 1846 the matter reappeared, and from that time it was considered almost without interruption until the final enactment of the bill, September 30, 1850, granting lands for the benefit of a line of railroad from Mobile to Cairo, and from Cairo to Chicago and Galena.⁴ While minor concessions of lands to railroads had preceded this act, none were effective, and it is therefore proper to date from 1850 the system of congressional land grants to railroads through the medium of the states as trustees or agents of the transfer. By the terms of this law, a two-hundred foot right of way and alternate sections in width along the line were assigned to

First grants
availed of

¹ Drummond, Land grants in aid of internal improvements, in Powell, Lands of the arid regions, 167; Donaldson, Public domain, 261.

² Stat. at large, X, 28. ³ Ibid., X, 683; Drummond, ut supra, 167-8.

⁴ Stat. at large, IX, 466.

Illinois, Alabama, and Mississippi. This amounted to 3840 acres for every mile. Provision was made that where any of the lands included in the limit of the grant had been already occupied, a like amount of lands could be selected as indemnity within fifteen miles of the road. No lands were given in aid of those sections of the line in Kentucky and Tennessee, for the federal government owned none within those states. To meet the objections of those who opposed upon constitutional grounds the enactment of this measure as tending to a reduction of revenue, and therefore equivalent to an appropriation, the law provided that full return should be made by doubling the price of the sections retained by the United States.¹ Upon the face of it, this operation appeared in the nature of an ordinary business transaction. The lands were unoccupied, and so valueless. By the building of the railroads a market would be created, and by the doubling of the price of the sections reserved the government would be reimbursed for the amount given away. The grant would therefore assume the nature of a commission from the government to the railroads as agents for placing the unoccupied lands upon the market.² The lands received by Alabama and Mississippi under this act were transferred to the Mobile and Ohio railroad, with the requirement that the road should forever remain a public highway for the United States government, free of tolls upon the transportation of troops or government freight, and that mails should be carried at rates to be determined by congress. Illinois, however, in the surrender of its grant to the Illinois Central railroad, at the suggestion of the company itself, imposed an additional tax of seven per cent upon gross earnings in lieu of all other state taxes.³

¹ Sanborn, 28. For an account of the proceedings in congress, see Sanborn, 25-37.

² George, Our land and land policy, 24-35.

³ Ackerman, Hist. sketch of the Illinois Central, 77-8; *Amer. Railroad*

The form of the act of 1850 was departed from but little in the grants which followed. In the second grant, which was made to Missouri, June 10, 1852, for the benefit of the Hannibal and St. Joseph and the Southwest branch of the Missouri Pacific, two new sections appeared. One provided for the disposal of the grant, and the other directed the secretary of the interior to offer at public sale, from time to time, the reserved sections of government land at the increased price.¹ By act of February 9, 1853, congress made

Acts subse-
quent to 1850

a grant of land to Arkansas and Missouri, but in this instance there was no provision for the offering of the reserved sections.²

Various grants were made in 1856 to Iowa, Florida, Alabama, Louisiana, Wisconsin, Michigan, and Mississippi; and in 1857, to Minnesota and Alabama. In each year also from 1862 to 1866 some of these states were recipients of additional grants.

A new departure was taken by congress in the act of March 3, 1863, granting lands to the state of Kansas. The number of sections per mile, which up to that time had been six, was increased to ten, and the indemnity limits were extended from fifteen to twenty miles.³ This action was taken because so much of the land included in the terms of the grant had already been taken up; but all subsequent grants followed the precedent set by this act, and called for 6400 acres per mile.

A new de-
parture

Opposition to the system of railroad land grants subsided after the enactment of the Illinois Central bill in 1850. Other states pressed claims for like treatment, and within a few years every applicant stood a good chance for success. Constitutional

The policy be-
comes general

Jour., XXIV, 88-9; Allen, Charter tax of the Illinois Central, *Jour. of Pol. Econ.*, VI, 353-67.

¹ Stat. at large, X, 8.

² *Ibid.*, X, 155.

³ *Ibid.*, XII, 772.

questions were seldom raised in the discussions in congress, and it came to be generally understood that any railroad which was constructed through the public lands was entitled to a grant.¹ With the growth of the practice, abuses arose, and several members of congress were active in efforts to enrich themselves and their favored constituents through the creation of conditions favorable to private and local enterprise.²

From an early date railroad connection with the Pacific coast had been the subject of discussion in and out of congress. With few exceptions, the plans proposed for its accomplishment contemplated some use of the lands along the chosen route. While originally the important trade with the Orient had been the main object in the minds of projectors, the annexation of California with the immediate discovery of gold served to change the emphasis. Constitutional obstacles were not raised against this measure, for there were no state governments between the Missouri river and California, and the authority of congress over the territories was admittedly absolute. What discussion there was, concerned itself with the authority of congress to create a corporation, and the choice of route. About the first point there was little difficulty, and only the plans of Wilkes, Pike, and Benton contemplated direct construction by the government. The matter of selection of a route was the subject of sectional controversy which delayed action until the secession of the Southern states. This was coincident with the success of a national party, which looked toward the strengthening of the functions of the federal government. Although the Republican party was at first split on the question of state

Efforts to
reach the
Pacific

¹ Sanborn, 53-5.

² Ibid., 55. For a specific instance, see Griffin, The Great Lakes in relation to the railroad development of northern Wisconsin, St. Hist. Soc. of Wis., *Proceedings*, XLVI, 217-8.

rights, necessities of war finally broke down all opposition to strong central government and federal activities. With the outbreak of the Civil war, and the uncertainty over the attitude of Californians upon the matter of open sympathy with the Southern cause, and with the possible danger of attack by nations friendly to the Southern states, a railroad to the Pacific coast was regarded as a political if not a military necessity.

Congress was now willing to act; and decision was made in favor of the central route from the Missouri river at or near Omaha through the South Pass, to Sacramento and San Francisco. A law was passed, July 1, 1862, granting to the Central Pacific, and Union Pacific, and to several connecting lines, five alternate sections of land on each side of the road for every mile of main line. In addition to this, there was a subsidy of government bonds.¹ But as investors did not find the proposition sufficiently attractive, an amendatory act of July 2, 1864, modified the terms of the loan, and doubled the acreage of the land grant. The indemnity limits were also increased from ten to twenty miles upon each side of the road.² Both acts conveyed a right of way of four hundred feet, and the privilege of free use of necessary timber and building materials from the lands of the United States along the route. As in all preceding grants the lands were to be set apart, and delivered in instalments as sections of the road should be completed.

A second transcontinental route was provided for, July 2, 1864, when a grant of lands was made to the Northern Pacific railroad of ten sections per mile in the states, and twenty sections in the territories along a route from Lake Superior to Puget Sound.³ A third line to the Pacific was authorized July 27, 1866, when the Atlantic and Pacific railroad company was chartered

¹ Stat. at large, XII, 489.

² Ibid., XIII, 356.

³ Ibid., XIII, 365.

to build a line from Missouri to California along the route of the old Santa Fé trail. To this road were assigned twenty sections per mile with privilege of indemnity selection within thirty sections in the states, while in the territories the size of the grant was doubled, and the indemnity limits increased to fifty sections per mile. The act also provided for a grant upon the same terms to the main line of the Southern Pacific in California.¹ The last congressional grants of land were authorized March 3, 1871, in favor of a through line from New Orleans to San Diego. The beneficiaries were the Southern Pacific upon that portion of the route west of the Colorado river, the Texas and Pacific along the line in Arizona and New Mexico, and the New Orleans, Baton Rouge, and Vicksburg in the state of Louisiana. Both grants followed the terms of the Atlantic and Pacific act, and this allowed to the Texas and Pacific a double allotment.² This road also received a generous donation of lands from the state of Texas, but it never earned any of the lands tendered by congress.

There were in all seventy-nine land grant railroads, of which twenty-one were direct beneficiaries of congress. It is estimated by the general land office that had these companies been able to earn all the lands embraced in the limits of the original grants they would have received in the aggregate nearly 200,000,000 acres; but because of forfeitures resulting from failure to conform to the requirements of the law, this total has been reduced to 158,286,627 acres, title to 108,153,252 acres of which had been established up to June 30, 1907. Over half of this acreage was granted by acts passed between 1862 and 1864; and about 68,000,000 acres of the amount certified have passed directly from congress to the corporations.³ Beginning in 1870 congress declared

Extent of
land grants

¹ Stat. at large, XIV, 292.

² Ibid., XVI, 573.

³ General Land Office, Statement showing land grants made by congress to aid in the construction of railroads . . . (1908).

the grants of several railroads forfeited for failure to comply with the provisions of the law. It was 1890, however, before a general act could be passed which provided for the forfeiture of lands along all portions of railroads not then completed and in operation.¹

From the records of the general land office it appears that the following proportions of the area of the several states were granted to railroads; Minnesota and Washington, one-fourth; Wisconsin, Iowa, Kansas, North Dakota, and Montana, one-fifth; Nebraska, one-seventh; California, one-eighth; Louisiana, one-ninth. It also appears that the Northern Pacific railroad was credited with an acreage of about 44,000,000; the Southern Pacific system, 24,000,000; the Union Pacific system, 20,000,000; and the Santa Fé system, 17,000,000. The Illinois Central grant amounted to over 2,500,000 acres, and that of the Mobile and Ohio to over 1,000,000 acres. Many of the lines now included in the "granger" systems — North Western, Burlington, Rock Island, and St. Paul — have received land grants, so that the aggregate acreage donated to each of these systems is several millions. It is perhaps necessary again to point out that title to all these lands has not yet been perfected by the railroads; for while certification is going on constantly, adjustments and failure to patent may reduce the amount of available acreage to a considerable extent.

In their relations with the railroads in the matter of land grants, the various departments of the general government were from the first disposed toward a liberal interpretation of the law, and charges have repeatedly been made that the general land office has been subject to the dominance of railroads. In the granting of the indemnity privilege it was clearly the intention of the congress which passed the act

Attitude of
public officers
in construction
of law

¹ Stat. at large, XXVI, 496.

of 1850 that the right should be exercised where lands included within the limits of the grant should be sold in the interval between the passing of the act and the definite location of the route. It is difficult, therefore, to find justification for the extension of this privilege to include all lands disposed of prior to the date of the grant. Yet, beginning with the Illinois Central grant it has been assumed that the railroads were entitled to the benefit of the most liberal interpretation of the law.¹ Notwithstanding that all grants were conditioned upon the completion of the work of construction within a specified time, and that in most cases this requirement was not fulfilled, there was no disposition upon the part of those concerned with the administration of the law to take proper action except in the case of a few sporadic acts of congress.

Not only have several railroads received lands in excess of the utmost allowed by the terms of the grants, but indemnity lands once withdrawn from entry for settlement were reserved for years after the grants had expired, and in some cases where no mileage at all had been constructed.² An end to this abuse came in 1887, when congress directed the department of the interior to adjust the grants, with the result that over 20,000,000 acres were restored to settlement.³

Abuses of
official discre-
tion

In consequence of the neglect of the general government to assert its rights of forfeiture in cases where the railroads had failed to build within the time set by the grants, it came to be generally understood that this important provision of the law would not be enforced, and congress, with perfect inconsistency, extended the time limits of some grants and declared the

¹ Julian, Railway influence in the general land office, *North Amer. Rev.*, CXXXVI, 240-1. For the other side see Beard, Railways and the United States land office, 2-3.

² Julian, Our land grant railways in congress, *Internat. Rev.*, XIV, 198-210.

³ Sanborn, 78-9.

forfeiture of others. This left those grants about which no action had been taken in a state of uncertainty which was finally relieved by the decision of the supreme court to the effect that the refusal or failure of the United States to protect itself under the law in cases where grants had lapsed was in effect an extension of the time prescribed.¹

There is no doubt that the benefits received by the railroads from land grants have been smaller than was expected when they were so eagerly sought. To the states immediately concerned, the grants have in many cases caused hardship. Following the withdrawal of large tracts of lands for indemnity purposes construction was often brought to a halt on account of bankruptcy, and the result was that no railroad was built, and the state was left with a smaller population and less revenue than there would have been had the grants never been made. Cases of this sort were

Some results not contemplated not at all infrequent in undeveloped states like Florida, Arkansas, and Texas, and in the territories where population was scant and products limited. Of all the railroads in Missouri which received grants of land, a single one obtained any real aid to construction from this source.² In some instances land grants have been a source of expense rather than a benefit to railroads. Admitting that some great speculative inducement was necessary in the launching of such pioneer ventures as the construction of the Illinois Central-Mobile and Ohio, and Central-Union Pacific projects, the fact that some railroads have been constructed along similar routes and under identical conditions without the aid of grants of land points to the conclusion that the system of land subsidies was not an indispensable accompaniment of railroad construction in the West. When the grants have proved of service, it has generally been not at a time when their aid was most

¹ *Schulenberg v. Harriman*, 21 Wallace, 44.

² *Million, State aid to railways in Mo.*, 118.

urgently needed, but after the initial stage of development had been passed by means of loans of public credit and the investment of private capital.

It is impossible to determine the aggregate receipts of the railroads from sales of lands, and it would be difficult in the case of any single road.¹ In general it may be said that the receipts have been much less than is popularly believed, and that the prices of lands were fixed with a view to rapid settlement and indirect returns through earnings from increased traffic.² But while it is true that "no railroad can afford to look at its land other than in relation to the traffic of its road,"³ some few roads have failed to act upon this theory. A large part of the Oregon and California lands are now in the control of E. H. Harriman as president of the Central Pacific. In 1906 it was announced that these lands would not be sold to settlers, but retained as a permanent estate. For this and other alleged violations of the law, congress in 1908 instructed the attorney-general to institute proceedings to bring about the forfeiture of the grant. The construction of the Illinois Central was first undertaken by New York capitalists who, by putting a high price upon the lands and issuing land bonds, attempted to carry the work to completion without the expenditure of capital, which was to be nominal.⁴ Other measures were found necessary, but in the end the lands were disposed of at high prices and with great profit.

Land grants had for their chief purpose the encouragement of railroad construction, but so far in excess of expectations or needs was the increase of mileage which followed that this became the grossest evil connected with the sys-

¹ See Sanborn, 83, and 93-126, *passim*.

² See *Railway World*, LII, 265, for some recent prices.

³ Talbott, *Railway land grants*, 8-10.

⁴ *Amer. Railroad Jour.*, XXIV, 497-8, 668-9, 792.

tem. So eager were promoters and speculators for the bonus of land that railroads were in many instances projected primarily for the purpose of obtaining a grant; and it could be said of more than one railroad company as was said by an English capitalist who in 1856 inspected the properties of the Illinois Central, "This is not a railway company; it is a land company."¹ The result was the extension of lines into so many undeveloped sections of the West that financial reverses were invited. Another result has been that on account of the scattering of population, rates were necessarily placed so high as to result in the bitterness of the "granger" agitation, and in much abortive legislation.

On the other side it must be said that land grants did contribute very largely toward the rapid upbuilding of the West, and that far-reaching political and economic changes have been brought about in consequence. It may also be admitted that the system of railroad land grants was as free from abuse as any of the methods adopted by congress for the disposition of its lands prior to the enactment of the homestead law. Soldiers' bounty script found its way into the hands of speculators; many of the educational grants were sold in parcels too large to encourage immediate settlement;² the grants to land companies were subjects both of political favor and of public abuse. It is also certain that a large part of the success of the Homestead act has been due to the preliminary opening of unsettled areas by railroads constructed under stimulus of grants of land. In the light of recent developments in connection with the administration of the public domain under the homestead and timber lands acts, it may be said that no system of disposal of our public lands has been free from questionable practices.³ It is generally agreed that land grants were justified under

¹ Ackerman, 75.

² Talbott, 5-7.

³ See What is the matter with our land laws? *Atlantic Mo.*, CII, 1-9.

certain temporary and local conditions, but that the need for them passed long before the system was abolished.

DIRECT FINANCIAL AID

A third variety of federal aid took the form of loans of United States bonds.¹ The Pacific railroad act of 1862 besides granting large tracts of land from the public domain directed the secretary of the treasury to issue to the six beneficiary companies thirty-year United States bonds payable in treasury notes or other forms of legal tender. Bonds were to be issued in amounts of sixteen, thirty-two, and forty-eight thousand dollars a mile, according to the nature of the country along the route; they were to be delivered as sections of the completed road were accepted by agents of the United States. These sections were to be forty miles long where the subsidy rate was \$16,000 per mile, and twenty miles long where the rate was in excess of that figure. As security, the United States was to retain a first mortgage upon the property of the companies. Charges against the United States for the transportation of troops and freight were to be applied to the payment of the subsidy bonds and the interest thereon. Upon completion of the work of construction, five per cent of net earnings was also to be applied to this purpose.² Together with the proffered grants of land, these inducements were insufficient to attract the support of the financial interests, and more generous terms were provided in the amendatory act of 1864. Congress now reduced the lien of the United States to a second mortgage, and permitted the issues by the companies of first mortgage bonds equal and in every respect similar to the

¹ It is interesting to note that in 1861 the Alabama and Mississippi Rivers railroad company addressed a memorial to the congress of the Confederate States asking for aid.

² Stat. at large, XII, 489.

subsidy bonds. The length of all sections was made uniform at twenty miles, and only one-half of the compensation for services rendered the United States was required paid toward the retirement of the government bonds.¹

Bonds to the amount of \$64,623,512 were issued from the United States treasury in accordance with these laws, thus allowing the companies to enjoy the benefit of credit to twice that figure, though the fact that all bonds were payable in currency made their value uncertain. The Union Pacific received \$27,236,512, and the Central Pacific, \$25,885,120. The others with the amounts were: Kansas Pacific, \$6,303,000; Western Pacific, \$1,970,560; Central Branch Union Pacific, \$1,600,000; Sioux City, and Pacific, \$1,628,320.

These bonds fell due between 1895 and 1899, and after much dispute and litigation over the "interest question,"² settlement was finally effected on such favorable terms that

**Settlement of
the debt**

in 1900 the attorney-general was able to report that out of a total indebtedness to the government of about \$130,000,000 there had been received \$124,554,551.³ The Union Pacific in 1897 guaranteed to the United States the payment of \$58,448,224 representing principal and accrued interest.⁴ An agreement with the Central Pacific was made in 1898 whereby the claims of the United States against that company and its constituent, the Western Pacific, were refunded into twenty notes payable every six months for ten years from 1899. These notes were secured by a first lien upon the property, and bore interest at three per cent. The amount of this claim was \$58,812,715. The last note was retired in 1908. From the Kansas

¹ Stat. at large, XIII, 356.

² Davis, Union Pacific railway, 208-24, contains a good discussion of these difficulties down to 1893.

³ Report of the attorney-general, 1900: 35.

⁴ Ibid., 1898: xv.

Pacific, the principal of the debt amounting to \$6,303,000 was received in 1898,¹ and \$132,943 in interest.² Altogether, it is usually conceded that the United States despite congressional inconsistencies and corporate knavery has succeeded remarkably well with its sole experiment at granting direct money subsidies to railroads.³ Some writers have interpreted the legislation of 1862 and 1864 as a "questionable departure from the settled policy of the government,"⁴ and consequently not to be regarded as a precedent which should lead to a fixed change of policy. That the policy is questionable cannot be gainsaid, but as a departure from "the settled policy of the government" it is to be considered in the light of the changing political creeds which have shifted from time to time as the economic interests of the majority have expressed themselves in legislation in congress.

¹ Report of the attorney-general, 1899: 31-2.

² Ibid., 1900: 35.

³ For an extension of this thought, see H. R. Meyer, Settlement with the Pacific railways, *Quar. Jour. of Econ.*, XIII, 427-44.

⁴ Davis, 238-9.

CHAPTER XVI

TRANSCONTINENTAL RAILROADS ¹

THERE have been several claimants for the distinction of having first proposed the connection of the settled portions of the country with the western coast by means of a railroad, but the germ of the idea can be definitely traced to an anonymous communication which appeared in the *American Farmer* of Baltimore, on July 9, 1819. This article bore the caption: "The Bactrian Camel. As a beast of burthen for cultivators and for transportation across the continent to the Pacific Ocean," and the author, who signed himself "American," said:

"By our arms, and our treaties with Great Britain, France and Spain, the entire possession and the absolute independent dominion has been acknowledged to us, over that vast portion of the continent, between the twenty-eighth and forty-fifth degrees of north latitude on the Atlantic, and the forty-first and fiftieth degrees on the Pacific Ocean. On casting an eye over the map, this immense region appears to be hooped and banded together by the most extensive lakes or inland seas, and some of the noblest rivers on the globe. The spirit and ingenuity of our citizens have done much, more already, perhaps, than ever was done by any other civilized people, to improve the navigation of such great streams, and thus to give activity and additional force to the influence of those extended commercial highways, as

¹ In connection with this chapter, Haney, *Congressional history of railways*, I, 219 ff, may be consulted to advantage.

bonds of union and harmony, and as channels of profit and prosperity.

“The territory, along the coast of the Pacific, within our dominion, and for a considerable distance inland, to the foot of the first range of mountains, is very fertile; it is well adapted to the production of the grains and fruits of the Atlantic portions of the Union, and abounds with the greatest quantity of excellent timber, particularly ship spars, which surpass in lightness, elasticity, and strength, those of the growth of any other part of the world. The fisheries of the Columbia River, and the neighboring inlets of the coast, have been well ascertained to be more accessible, safer, and fully as productive, as the best situations off Newfoundland. That the climate is salubrious and healthy is proven by the numerous, and robust population of Indians, that inhabit the country. Settlements will, no doubt, very soon grow up, and spread along the shores of the Columbia River with astonishing rapidity;—and the young athletic powers of our government will, ere long, launch into its waters a fleet to move along the coasts of the Pacific, and take under its protection the commerce, which the enterprise of our citizens will soon create and extend over those seas, to an incalculable amount. The passage from the Chesapeake, the centre of our Atlantic border, by sea, round Cape Horn to Columbia River, and back, as proven by the numerous voyages of our North West coast traders, cannot be accomplished in less than ten or eleven months. These two great maritime and highly beneficial borders of the United States are, thus, by the vast southern stretch of our continent, almost completely separated the one from the other, and divided into distinct spheres and ranges of maritime commerce, which, however, the obvious interests of the union render it indispensably necessary to connect by every possible and practicable means to the heart of the territory and population, by river and by land transportation, or by both, and by the

most rapid and certain communications. To enable the government to wield its potent energies with effect, and to give to the American people the means of exerting their enterprising commercial spirit, to the greatest advantage, and to enable them to make due profit from the great resources of their country, it has become necessary that a short, direct, and certain means of communication should be established into every quarter, to the most remote point, and particularly over the continent, to the Pacific Ocean.

“Steam boats have effected much; our improvements and facilities of intercourse, in that way have justly attracted the admiration of the civilized world, but there are physical difficulties and obstacles which that masterly invention can neither surmount nor remove, with all its skill and power. The navigation into the interior, along the Missouri, is very circuitous; it is short of the great object, that of reaching the Pacific, by many hundreds of miles, because from the falls there is, thence, a distance of about eight hundred miles over to the Columbia River, no navigation practicable for such vessels of any size; from the falls downward, for a thousand or fifteen hundred miles, the navigation is entirely closed by ice during the winter season. Therefore, whatever advantage may be derived from steamboat transportation of heavy articles, by the way of the Missouri, into the interior, it must certainly be abandoned as the mail route to the coast of the Pacific; and also, I am inclined to believe, as the route for the transportation of any article across the continent, farther than the Yellow Stone River. Beyond that point, other modes of conveyance must be sought for and applied, and the only means at present in our power, and capable of being applied, are horses and oxen. . . .

“A communication from coast to coast, so circuitous and tardy, is obviously fraught with most seriously evil consequences to the interests and harmony of the union. It may be safer, and in general exposed to less risk, than that

by the way of Cape Horn; but, in the winter season, of our hemisphere, it must be more interrupted and longer discontinued, than that by sea. It behooves us therefore to turn our attention, in time, to some mode of procuring a more speedy and less broken intercourse with the opposite coast of our continent, before the settlements which must, very soon, take root and spread along it, shall have their interests developed in other directions, and be estranged from their natural and beneficial connection with their kindred of the Atlantic mother country. This communication I believe to be perfectly within our power to effect by means of the BACTRIAN CAMEL. . . .

"The fleet *Bactrian Camel* . . . might with reliefs, relays, and care, be made to transport the mail over the continent at the rate of two hundred miles a day . . . and, in one month, an answer might be thus obtained to any communication from one coast to the other. . . ." ¹

In 1820 Robert Mills put out in Baltimore "A Treatise on Inland Navigation," ² in which he made the first suggestion for a Pacific railroad of which there is any record.

Mills was a native of Charleston, who after studying under Latrobe had worked as an architect in Baltimore, and in 1820 became state architect and engineer of South Carolina. He later served as superintendent and architect of public buildings under Jackson and Van Buren, and while holding that position designed the United States treasury building and the Washington monument. While quoting extensively from

¹ *American Farmer* I, 113-5. See Fleming, Jefferson Davis's camel experiment, *Popular Science Mo.*, LXXIV, 141-52; also Hall, Camels of the Southwest, *Out West*, XXVI, 302-14.

² A treatise on inland navigation (1820). A second edition was published: "Inland navigation. Plan for a great canal between Charleston and Columbia and for connecting our waters with those of the western country." See Phillips, *Hist. of transportation in the eastern cotton belt*, 85.

the American Farmer article, he did not acknowledge the patent fact that to its unknown author he was indebted for the inception of his idea, and indeed for many of his phrases. That this is true is evident from the following paragraphs:

“Let us but take a glance at our territory washed by the Pacific ocean and examine its position, in relation to our Atlantic possessions, and we shall be struck with astonishment, at the great importance of the subject under consideration.

“The usual mode of communication with our settlements on the Columbia river is by sea round Cape Horn; and it seldom occurs that a voyage there and back, is accomplished in less than ten months, and from that to one year. It will be seen from this fact, of what consequence it is to the interests of the union, and how indispensably necessary to enable the government to wield its potent energies with effect, that a short, direct, and certain means of communication should be established *over* the continent to the Pacific ocean.

“The growing interests of our possessions on the Pacific demand of the general government some attention, to creating some greater facilities of intercourse with them. All along the coast, within our dominions, and for a considerable distance inland, to the foot of the first range of mountains, is said to be very fertile; ‘it is well adapted,’ says a late writer, ‘to the production of the grains and fruits of the Atlantic portion of the union, and abounds with the greatest quantity of excellent timber, particularly ship-spars . . . [ut supra] . . . to an incalculable amount.’

“When the Yellow Stone expedition has accomplished the object of forming a settlement at or near the junction of this river with the Missouri, and an expedition is sent up the Columbia river, to form a similar settlement for the protection of our trade in that country, we shall no doubt find our government fully sensible of the importance of completing a good rail or turnpike road between the two points. Then from the seat of government, or from Baltimore, we

could by our proposed canal, as a portal, have an inland navigable communication with the Pacific ocean the whole distance except about three hundred and forty miles of land carriage

"To calculate on the aid of steam boats upon these waters, and on an application of the same moving power to carriages, upon rail roads across the mountains, we may estimate an average progress of eighty miles per day on this route, which would enable us to accomplish the journey in a little more than sixty-five days from the city of Washington to the Pacific ocean." ¹

In this tentative form the suggestion was put forward when there was nothing but a few miles of the rudest sort of tramway on this continent, and ten years before the success of Stephenson's "Rocket" at Rainhill on the Liverpool and Manchester. The contribution of Mills was the substitution of a plan for a portage railroad for the absurd proposition for a caravan route, and while his debt to the American Farmer article is clearly established, the essential feature of his suggestion is his alone.²

As soon as the railroad had been introduced in this country its sponsors made many enthusiastic predictions for its future, and it is altogether possible that a line to the Pacific Coast was suggested by several people at about the same

¹ First ed., 53-9; second ed., 55-61.

² In a Memorial submitting a new plan of a roadway (29 cong. 1 sess., H. doc. v. 6, no. 173), Mills, in 1846, said: "The author has had the honor of being perhaps the first in the field to propose to connect the Pacific with the Atlantic by a railroad from the head navigable waters of the noble river disemboguing into each ocean. In 1819 he published a work on the internal improvement of Maryland, Virginia, and South Carolina, connected with the intercourse of these States with the west." (2.) In support of this claim he cited extracts from his book of 1820, but his error in date and his failure to give the title of the book have deprived him of the credit which is his due. Davis (Union Pacific, 16-7) rejects the claim altogether; Dodge (Romantic realities, 5-6) is inclined to credit it; and Wheeler (Story of a railway, in Wonderland, 1900: 78-9) accepts it on faith.

time. Of these, the first to get his suggestion into print, so far as it is at present known, was the anonymous author of "Something New," an editorial which appeared February 6, 1832, in the *Emigrant of Ann Arbor*. This writer, who it is supposed was Judge S. W. Dexter, publisher and one of the editors of the paper, after apologizing for suggesting a plan which might be thought visionary, proposed a railroad from New York along the south shores of Lake Erie and Lake Michigan, across the Missouri near the mouth of the Platte, through the Rocky mountains near the source of the Missouri, and thence by the Lewis and Columbia rivers to the Pacific.¹ This suggestion was seconded by Dr. Samuel Bancroft Barlow, of Granville, Massachusetts, in the *Westfield Intelligencer*, as early as 1834.² John Plumbe, of Dubuque, in 1836 also proposed the construction of a railroad from Lake Michigan across Wisconsin and Iowa over the northern route to Oregon, and on March 26, 1838, conducted in his home city the first public meeting convened to advocate the construction of a Pacific railroad.³ Another active projector of a railroad to the Pacific was Dr. Hartwell Carver, of Rochester, grandson of Jonathan Carver the explorer, whose first article upon the subject appeared August 11, 1837, in the *Morning Courier and New York Enquirer for the Country*.⁴

¹ Davis, *Union Pacific railway*, 13.

² *Ibid.*, 14-5; Smalley, *History of Northern Pacific railroad*, 52-6, reproduces the article in full.

³ Plumbe, *Memorial against Mr. Asa Whitney's railroad scheme*, 20; Davis, 18; Bancroft, *California*, VII, 499. "I claim to be the humble individual through whom the project of a railroad from the Atlantic to the Pacific. . . . originated." (Plumbe, 20.) See King, John Plumbe, originator of the Pacific railroad, *Annals of Iowa* (3 ser.), VI, 289-96.

⁴ Carver, *Proposal for a charter to build a railroad from Lake Michigan to the Pacific ocean*, 25; Davis, 17. "As there are perhaps some doubts in the minds of many who the first projector of this enterprise actually was,

In 1838 Rev. Samuel Parker, a missionary to the Indians in Oregon, published his journal. In this book, under date of August 10, 1835, he recorded his progress through a pass in the Rocky mountains, and added: "There would be no difficulty in the way of constructing a railroad from the Atlantic to the Pacific ocean, and probably the time may not be far distant when trips will be made across the continent, as they have been made to the Niagara falls, to see nature's wonders."¹ The journal shows clearly, however, that it was largely rewritten for publication, so the earlier date cannot be assigned to this suggestion. Willis Gaylord Clark,

the author would remark that . . . he can, if necessary, to prove the fact beyond any possible doubt, that he was certainly the first who ever wrote and published anything upon the practicability and feasibility of this railroad, bring half of all western New York, as witnesses before the jury of the country, to substantiate the priority of the scheme fully to the satisfaction of all." (Carver, 3-4.) Mrs. Victor (Bancroft, California, VII, 498) gives the date as 1832, but this is obviously an error. If Carver's most extravagant claims were warranted, the date could not be put earlier than 1834. He says: "Your memorialist about fifteen years ago conceived this great and mighty plan of connecting these two great oceans by a railroad, running in some direction across the continent, and at that early date commenced writing and publishing to the world the importance of that sublime enterprise." (Memorial for a private charter asked for by Dr. Hartwell Carver and his associates, January, 1849: 4). Another of the Bancroft histories (Northwest Coast, I, 558) says that Hall Jackson Kelley of Boston began the agitation of the Pacific railroad question as early as 1831. Kelley's claim follows (A history of the settlement of Oregon, Springfield, Mass. 1868. 128 p. See pages 8 and 123): "As early as 1849 [1829,] I projected a railroad between the valley of the Mississippi and the shores of the Pacific. Reference to that project is made in my Geographical Sketch, printed in the above year [A geographical sketch of that part of North America called Oregon. Boston, 1830. 80 p. See pages 79-80], and also in my memorial to Congress in 1839 relative to the statistics and topography of that territory." (Memoir, Committee on Foreign Affairs, Supplemental report, 25 cong. 3 sess., H. rep. v. 1, no. 101, serial 351. See page 48.) There is no warrant for this claim.

¹ Journal of an exploring tour beyond the Rocky mountains performed in the years 1835, '36 and '37: 73.

in a review of Parker's book published in the *Knickerbocker*, June, 1838, seized upon this sentence and said: "Our traveller is of opinion that there are no insurmountable barriers to the construction of a railroad from the Atlantic to the Pacific. No greater elevations would need to be overcome than have been surmounted on the Portage and Ohio Railroad. And the work will be accomplished! Let the prediction be marked. . . ." ¹

While for the most part the ridicule with which these predictions were met may be passed by, one significant protest may be cited. The *Oregonian* was the official organ of a Boston society which had for its purpose the elevation of the Indian race by means of a Christian settlement in Oregon. Its editor may safely be presumed to have possessed a more intimate knowledge of the Far West than the ordinary person, yet in the issue of June, 1839, he ridiculed the project for a railroad to the Pacific. Prompted by the news of Plumbé's convention at Dubuque, and the discussion which followed, he protested in these words:

Practical difficulties

"There are many things which must long, perhaps for ever, prevent such a road from being built or used. From thirty to fifty millions of dollars would be required at the very lowest calculation to build such a road, and probably it would cost much more. When it is completed, who will travel on it? Where are the passengers? Possibly five thousand might pass over it in one year. And then there would be the China and India trade, but that portion of it which would come by Oregon would for a long time be less than the interest of the sum required to support the road. How then is it to be maintained? What will be its use? We fear, too, that a railroad through the Indian country would not be exactly safe. A train, loaded with Chinese or Indian goods, would possibly tempt the Indians, or hunters, that

¹ *The Knickerbocker, or New York Monthly Magazine*, XI, 556.

might plunder the wreck. A stampede would be no trick at all to such an achievement. What will the train do for wood, water, and provisions, and who will tend turn-outs a thousand miles from civilized man? We seriously doubt, too, whether a railroad can be cut from the Rocky mountains to the Pacific. What route would be taken? We know of none which mountains impassable do not block up.”¹

The writer of the Emigrant article proposed government construction of the Pacific railroad, but he observed that if congress would not undertake the work, it probably would not object to the formation of a company for the purpose, and a subsidy of three million acres of public lands.² Barlow made no alternative suggestion, but proposed that the

Suggestions as to methods of funding work should be carried on upon the basis of annual appropriations of the public money.³

In the face of the growing hostility to public funding of internal improvements, however, and with the prospect of large individual profits, most of the Pacific railroad projects which were actively pressed contemplated construction by a company which should receive some form of government aid.

A grant of land was the most common form of subsidy sought. Plumbe proposed that alternate sections on each side of the route be turned over to a company which should provide for most of its capital out of land sales. The reserved sections of the government were to be doubled in price. “Consequently the proposed grant would . . . cost

Land grants proposed the Government nothing.”⁴ Carver varied his plan from time to time, but one of his propositions was for a grant of land twenty miles on either side of the route.⁵ Another included among its pro-

¹ *The Oregonian and Indian's Advocate*, published under the direction of the Oregon Provisional Emigrant society, I, 221-2.

² Davis, 14.

³ Smalley, 53.

⁴ Plumbe, 30; Davis, 18.

⁵ Carver, Memorial for a private charter, 2.

visions a grant of sufficient land and materials for the construction of the road and the location of buildings and sidings.¹ William Bayard and company of New York offered to post a forfeit of \$5,000,000, and to complete the work within eight years in return for a grant of land fifty miles wide along the entire route.²

Asa Whitney was the most prominent of the early advocates of a transcontinental railroad. He was a New York merchant who had been engaged in the China trade, and upon his return to the United States in 1844 he offered to build a railroad from Lake Michigan to the Pacific coast out of the proceeds of land sales. His plan was for congress to assign to him at a nominal price a strip of territory sixty miles wide along the entire route, and to pass title as each ten-mile section of the road should be completed. To insure construction through those portions of the country where the lands were worthless, it was provided in the scheme that half of the lands in the valuable locations should be held in reserve by the United States, and sold at auction as additional capital should be needed. There was to be no stock, but an individual proprietorship in which the chance for success depended upon the increased value of the lands. Thus the railroad would be built by capital created by itself.³

This was to be effected by a system of colonization by which it was proposed to people the territory through which the road would be led.⁴ The profit from the venture was to be derived from the unsold lands which should be left after the completion of the work, for while the completed railroad was to be Whitney's property, it was not expected that it would pay for several years.

¹ Ibid., 1; Proposal for a charter, 6.

² Ibid., 4; Loughborough, Pacific telegraph and railway, 20.

³ Whitney, Project for a railroad to the Pacific, 9-12, 37.

⁴ Davis, 21-2.

At this time it was not supposed that more than one transcontinental railroad would be built, so these projects contemplated a monopoly of overland rail traffic. This was certainly true in the cases of Whitney, Carver, and Bayard and company, and probably also in that of Plumbe. Plumbe, however, desired a wide distribution of stock of his company, so as to avoid the odium attached to exclusive privilege. There were to be twenty million shares at five dollars each, upon which one instalment of twenty-five cents was to be assessed, and further capital requirements were to be provided for out of the sales of the land grant.¹ In another instance he modified this suggestion somewhat: "Let the stock be divided into shares of ten dollars each and every resident of the United States be afforded the opportunity of subscribing for one share each, before any are permitted to take a greater amount, thus securing to *all* an equal chance of participation in the control, honor, and profit of this glorious undertaking."¹

Josiah Perham, in his plan for a "People's Pacific railroad company," proposed to ask one hundred dollars each from one million persons, and to derive further capital as needed from the proceeds of land sales.² Carver, like Whitney, proposed that congress should sell him lands at nominal cost.

Private proposals from 1844 to 1850

He wanted the privilege of buying eight million acres of the public lands, to be selected anywhere within thirty miles of the road. The price was to be \$1.25 per acre, in contrast with ten cents per acre as in Whitney's plan, but this sum was to be paid in stock of the company as sections of the road should be completed.³ Later he changed his plan and asked that the same acreage be sold for fifty cents per acre, selections to be

¹ Plumbe, 37.

² Perham, People's Pacific railroad company, Charter, organization, address of the president, 18; Smalley, 97-105.

³ Carver, Proposal for a charter, 7.

restricted within ten miles of the road. Under this modified plan congress was asked not only to take stock in payment for the land, but also to subscribe \$8,000,000 of additional stock to be paid for in instalments, as in the case of individual holders. "This gives the Government and the people an equal control over the whole operation with the rest of the Company, and will do away with all fears of monopoly."¹

P. P. F. Degrand, of Boston, in 1850 put forth a proposition for a company to be chartered by congress with \$100,000,000 capital. This company, after assessing \$2,000,000 upon the stock, was to be allowed to borrow United States six per cent bonds to an amount not to exceed \$98,000,000, as might be sufficient to construct a double-track road. In addition he sought a land grant ten miles in width along the north side of the road, and land for the road bed, stations and sidings, with the right to take construction materials from the government lands.²

Against the greed which was so obviously at the bottom of many of these propositions, a reaction in favor of a government railroad was to be expected. George Wilkes of New York in 1844 began agitation for a Pacific railroad to be constructed wholly out of direct appropriations of congress. He scorned the land grant feature so prominent in similar plans of the day, and advocated not only government construction, but operation through commissioners to be elected either by the state legislatures or the people. He maintained that there was no necessity for any special measures for financing the work, declaring that the national treasury was able to provide the required capital without the aid of allotments

¹ Carver, Memorial for a private charter, 1-2.

² Proceedings of the friends of a railroad to San Francisco . . . including an address to the people of the United States, showing . . . P. P. F. Degrand's plan, 4.

of public lands with the inevitable accompaniment of speculative abuses.¹

Another plan for a national railroad was proposed by Albert Pike at the Memphis convention in 1849. This provided that capital requirements should be satisfied by an issue of United States bonds secured by a pledge of the proceeds of public land sales. Upon completion of the road the cost was to be divided into as many equal parts as there were states and organized territories, and each state should be entitled to purchase its share. Each territory should have reserved to it the privilege of purchasing its allotment upon coming into statehood.² Thomas H. Benton of Missouri also championed the proposition for a national railroad. He vigorously opposed all schemes calculated to mix public

The views of and private interests, and held that construction should be carried out by the United States
Thomas H.
Benton

"so far as their territory extends, leaving the two ends, where it would go through States, to the operation of State laws and State authority." His plan was that an issue of government bonds should be made, secured upon the public lands.³ At another time he suggested that the necessary capital might be derived from the proceeds of sales of three-fourths of the public lands in Oregon and California, and one-half of those elsewhere in the country.⁴

Visionary and impracticable as were these plans, in the aggregate they constituted a fund of suggestion from which were drawn the provisions of the first Pacific railroad acts. In pamphlets and in newspaper articles the matter was laid before the people, and advocates of the various plans and routes presented the subject from the platform. Plumbe

¹ Wilkes, Memorial for a national railroad, 19-22.

² National plan of an Atlantic and Pacific railroad, and remarks of Albert Pike made thereon at Memphis, 2.

³ Letter from Col. Benton to the people of Missouri, 9.

⁴ Davis, 31; Loughborough, 21.

was active in lecturing, both in the West and in New England, but his efforts were without apparent effect. Whitney toured the entire country, addressing legislatures and conventions, lecturing, and in every possible way spreading his new gospel. Many of the legislatures endorsed his plans, although some of their recommendations were qualified.

The matter of choice of route in itself proved a sufficient obstacle to the success of any plan, however well considered, and the defects of Whitney's scheme were many and obvious. To discuss this question of route great conventions were held at St. Louis, Memphis, and Philadelphia, and there were also many minor gatherings in various other cities. This had the effect of clearly stating the points at issue, and bringing out the defects of the several plans and the advantages of each of the proposed routes. In congress dis-

The question
of route

cussion was aroused by the introduction of memorials by Whitney, Carver, Plumb, and others; though Whitney's plan was the only scheme of a private nature to receive much favor.¹ The national plan of Wilkes was, however, sufficiently supported to present a formidable obstacle to congressional action in Whitney's favor even had there been no sectional division over the choice of route.² Whitney's project was not considered in congress after 1852, but the Pacific railroad question continued to occupy the attention of the leading men of the country in or out of congress. Edwin F. Johnson, a well-known engineer, lent his energies to the advocacy of a northern route as the most feasible, and so convincingly did he present his case³ that there is no doubt that he contributed more than any other individual, to the causes which

¹ Committee on Roads and Canals, Whitney's railroad to the Pacific, 31 cong. 1 sess., H. rep. v. 1, no 140, serial 583. Appendix of report contains Whitney's memorials of 1845, 1846, and 1848.

² Committee on Roads and Canals, Railroad to the Pacific ocean, 29 cong. 1 sess., H. rep. v. 4, no. 773, serial 491.

³ Johnson, Railroad to the Pacific, northern route.

influenced congress in 1853 to authorize the examination of all the possible routes to the Pacific to determine which was most feasible. Under this law five corps of engineers were despatched by the secretary of war, and upon the publication of their reports in 1865 ¹ the problem was no nearer solution than before, for it became known that several routes presented attractive features, and that all were practicable. The question now became not which section of the country should have the only railroad to the Pacific, but which should be benefited by the construction of the first, and what would be the effect on the balance of political power. The effect of the discussion was hopelessly to involve the issue in sectional strife,² and although bills were constantly before congress, it was not until the withdrawal of the southern members at the outbreak of the Civil war that action was possible.

The Republican party came into power pledged to the construction of a Pacific railroad, and public sentiment demanded that the work be carried out. An act was therefore passed July 2, 1862,³ incorporating the Union Pacific railroad company, which later connected with the Central Pacific railroad company of California.⁴ Work was begun on the Central Pacific the same year, in 1864, and on the Union Pacific in 1865, and when the lines met at Promontory Point, May 10, 1869, the Central Pacific had built 689 miles from Sacra-

¹ Reports of explorations and surveys to ascertain the most practicable route for a railroad from the Missouri to the Pacific ocean, 33 cong. 2 sess., H. ex. doc. v. 11, no. 91, pt. 1-11; 36 cong. 1 sess., H. ex. doc. v. 11, no. 56.

² Davis, 39-95, "Sectionalism and localism," is an excellent detailed study of this period.

³ Stat. at large, XII, 489.

⁴ Davis, 96-135, "The charter," is a detailed description of this and the amendatory act, together with an account of the deliberations of congress upon the subject.

mento and the Union Pacific 1086 miles from Omaha. These results were brought about by the activities of two groups of men whose names have been inseparably linked with whatever of credit or of odium has attached itself to the achievement, and to the methods by which it was effected. Upon the Union Pacific was "the irrepressible George Francis Train," Thomas C. Durant, Sidney Dillon, and the brothers Oakes and Oliver Ames, and in charge of the work on the Central Pacific was that remarkably efficient quartet made up of Collis P. Huntington, Leland Stanford, Charles Crocker, and Mark Hopkins.

The pioneer line was no sooner authorized than others were projected along the several routes to the Pacific which the government engineers had found to be feasible. The Atlantic and Pacific project was launched in 1866,¹ but bankruptcy came after only a few miles had been constructed. In 1881 the Atchison, Topeka, and Santa Fé and the St. Louis and San Francisco obtained joint control of this company. The same year the New Mexico branch of the Atchison reached Deming, where it connected with the eastward extension of the Southern Pacific and opened the second through line to the Pacific. The Atlantic and Pacific reached Needles in 1883, and Barstow in 1885, when connection was made with the Southern California line to the coast. The Southern Pacific was already in possession of the route from Needles to Mojave, but the line was taken over by the Atchison under a lease. The Atchison in 1890 secured full control of the Atlantic and Pacific. In 1898 it purchased the San Francisco and San Joaquin Valley, running between Bakersfield and Stockton, projected by San Francisco capitalists as an independent route to the East, and the following year continued the line to Point Richmond on San Francisco bay. This gave the Atchison a through route from Chicago

The develop-
ment of the
southern route

¹ Stat. at large, XIV, 292.

to San Francisco, except for sixty-eight miles through the Tehachapi mountains, between Mojave and Bakersfield, where trackage rights were obtained from the Southern Pacific. This road was largely the creation of William B. Strong of Boston, who lost control in the failure of 1889.

Two companies competed for the privilege of building the through line between New Orleans and California. The Texas and Pacific under Thomas Scott finally obtained authority to extend as far west as the Colorado river, and the Southern Pacific was to complete the line from San Francisco to a connection at that point. The Southern Pacific, however, met with fewer delays, and without authority built eastward from the Colorado. El Paso was passed, and a connection effected with the Texas and Pacific at Sierra Blanca late in 1881.

The Northern Pacific was chartered in 1864.¹ At first it was exclusively a New England enterprise, and it was the hope of the projectors by this means to open a direct through line from Boston to Puget Sound by way of the Vermont Central, and a connection to be built between Montreal and Lake Superior. John Gregory Smith, the first president, was also head of the Vermont Central. The first five years were spent in a fruitless effort to obtain direct financial aid from congress, but an agreement was made with Jay Cooke and company as financial agents, and work was finally begun in 1870. The failure of this banking house in 1873 brought on the collapse of the road, and work was abandoned the following year, when construction had proceeded as far as Bismarck. After reorganization, construction was resumed in 1880 under the presidency of Frederick Billings. In 1881 control of the road passed into the hands of Henry Villard, who had made himself master of the transportation business on the Northwest Coast, and construction was completed in 1883 under his leadership.

**The Northern
Pacific**

¹ Stat. at large, XIII, 365.

A fifth transcontinental road was formed in 1884 by the junction at Huntingdon of the Oregon Short Line and Utah Northern with the Oregon Railway and Navigation company's road. This opened communications between Portland and Ogden, and connected not only with the Union Pacific, but also with the Denver and Rio Grande Western which had been completed the preceding year by William J. Palmer.

**The Oregon
Short Line**

When James J. Hill obtained control of the St. Paul and Pacific after the panic of 1873, he took the first step in the construction of the Great Northern. In 1879 he reorganized the bankrupt property and adopted the name "St. Paul, Minneapolis, and Manitoba." This road was gradually extended westward, but in 1890 it was leased to the Great Northern railway company, which completed a road between St. Paul and Seattle in 1893. It has sometimes been claimed for this line that the Great Northern is the only transcontinental which has been built without public aid, but the records show that the St. Paul, Minneapolis, and Manitoba received 3,675,000 acres of lands from the United States.

**The Great
Northern**

Three new routes to the Pacific Coast have been projected since the opening of the twentieth century. Of these the San Pedro, Los Angeles, and Salt Lake, chartered in 1901, was opened in 1905. The Western Pacific was organized in 1903, and construction is now going on between San Francisco and Ogden to form a Pacific outlet to the Denver and Rio Grande and the other Gould roads. The Chicago, Milwaukee, and St. Paul, long classed as a "granger" road, in 1905 entered upon an era of expansion with Seattle as its Pacific terminus. Work was begun in 1906. A glance into the future leads to the belief that other roads situated as was the St. Paul, without friendly connections with the Pacific, will find it necessary to extend their lines to the west coast. The Rock Island

**Other Pacific
roads**

already reaches to El Paso, but its relations with the Southern Pacific are such that that point must be regarded as a halting place and not as a goal. The Chicago and North Western is also confronted with this problem of western connections, and its future seems to be along the direction of an independent route to the Pacific Coast. Even the Burlington, jointly controlled by two of the strongest transcontinental lines, is generally understood to be contemplating an extension to the Pacific.

CHAPTER XVII

FINANCIAL INSTITUTIONS AND SYNDICATES AS AGENCIES OF CAPITALIZATION

So long as funding was local in character, the employment of institutional agencies was for the most part unnecessary; in fact, individual appeal was more effective. Specialized agencies were used, however, from the beginning. Most common among these was the charter commission appointed by the legislature in an act of incorporation. Petitioners for charter grants would ask that trustees be appointed to open subscription books, to make allotment of shares, and by legal process to enforce the collection of subscriptions. The trustees were usually men of reputation, men in whose integrity and judgment the community had confidence.

As relatively few companies were able to sell their shares by the simple method of opening books at points specified in the charter or as advertised by the commissioners, some more direct agency of appeal was required. Meetings were called by local boards, and committees and individuals appointed to solicit subscriptions and thus enable the promoters to get in touch with the local constituency. These and other devices hereinbefore described at length were employed to supplement the work of the charter commission in assembling capital.

There was a gradual transition from the use of the specially incorporated agency of capitalization to the employment of financial institutions. Banks and financial agents were first employed to sell state bonds which were issued to build

canals and railroads or to aid private companies in carrying out works of internal improvement. The methods used by agents working on commission varied according to circumstances. Many of the promoters from certain sections of the West sought support in New England, and often selected agents to canvass in the towns in which they had once lived. The fact that nearly all of the early New England roads paid large dividends made the stock of railroads attractive. Again, a direct appeal would be made to a financial centre like Boston, Philadelphia, or New York. This might be done by the promoter himself in a conference with the head of a financial house, or indirectly through agents who not infrequently were brokers having offices in an exchange centre. The brokers would seek to dispose of the securities to individuals by newspaper advertising, by circularizing lists of possible customers, or by public offering through a brokers' board. The stock and bond agent did not confine his operations to American capital, but frequently went abroad to lay his proposition before English, French, and Dutch investors. An early instance of this practice is found in the financing of the Illinois state canals through agents who were sent to Amsterdam and London for the purpose of disposing of bond issues.

Relatively few of the early local roads obtained capital by sales of bonds, but with the introduction of state guarantees of credit and land grants, this policy was reversed. Thereafter, it was the common experience for companies to procure funds in the form of subscriptions of one kind or another sufficient to build the road, then to mortgage the improvements to obtain the money needed for rails and equipment, leaving the stock as a bonus to be shared between the promoters and the bondholders. The early roads built by stock subscriptions also sooner or later came to issue bonds for betterments or extensions. A large part of the

securities offered to the public were in the nature of long-time credit obligations. For these the market was wider than for stock. Bonds were considered a better form of investment. The bonds of small roads were frequently sold locally, but the bonds of the more extensive transportation enterprises went to the financial centres of America and Europe, where they were disposed of either through individual bond agents or through institutions acting as agents.

FINANCIAL INSTITUTIONS AS FUNDING AGENTS

The part taken by the Manhattan company in financing the Erie canal has already been referred to. The second United States bank dealt actively in railroad shares and bonds after it had been definitely settled that its career as a great central commercial agency was to come to an end. In 1836 this institution reported to the auditor of Pennsylvania that it had loans to the amount of nearly \$7,000,000; and in 1841, when its assets were reduced largely by holding securities, its loans abroad were reported at approximately \$12,500,000. This gives some idea of the hold which the bank had on the foreign market, as well as the method by which foreign funds were drawn into use for purposes of American capitalization when foreign sales could not be made.

The railroad bank was an agency devised to serve a double purpose of financing railroads. It was intended to provide an agency through which funds might be made available for construction and equipment without requiring the company to issue a corresponding amount of shares and bonds. That is to say, the need for a medium of exchange being ever present, and these institutions being authorized to issue notes to meet this demand, the railroad was thus able through its banks to pay for labor and materials used in construction by the use of its own demand credit, which could be employed in the community in the form of current

funds. This enabled the company to carry on construction to an extent disproportionate to its capital. It was also looked to as a means of providing current funds in the form of notes, which might be issued in payment of the expenses of operation without the company's incurring an added charge for interest on loans. That is, to the extent which the community would retain and use the notes of the bank which were issued in settlement of expenses, to that extent it was relieved from a floating debt to which interest charges would attach.

Besides these advantages, the railroad banks were used to give an institutional contact, which aided materially in disposing of securities and in supporting credit. The dangers of this practice lay in providing for a form of currency which would disturb commercial credit relations, rather than in the weaknesses attached to the method of financing the railroad. The road having been completed and placed in operation, its continuance as an instrument of transportation was assured, for if it should become insolvent, it might be kept in operation through a receivership.

The railroad bank was the exception. The chief funding agencies for internal improvements were the regular commercial banks created in the several states in which capital was so much needed, — the state banks. As soon as the states began to take a leading part in canal and railroad construction, the influences which had theretofore been used in support of a great federal institution were gradually diverted to the upbuilding of similar state institutions. These banks became the centres of promoting activity. They acted as agents of sale of securities; they purchased securities; and they made loans to other banks and to individuals to enable them to purchase railroad securities, accepting the securities as collateral for the loans.

In its capacity of selling agent, the state bank did not depart from its true purpose; that is, it did not impair its ability to provide the commercial community with accommodations in the form of short time and demand credit which might be safely used to facilitate exchanges. In this capacity it might have continued to act indefinitely without weakening the basis of private commercial credit, thereby becoming one of the most conspicuous elements in the periodical inflations and collapses which have come to be known as periods of prosperity and of depression. In this capacity, also, it was able to bring securities to the favorable attention of customers, and through institutional contact and correspondence to get new issues before the outside financial world. It served as a financial intermediary between the promoter and broker on the one hand, and persons who had funds to invest on the other. It was able to give wholesome counsel to persons having shares and bond issues for sale. But in the other two capacities mentioned it impaired the safety of financial credit.

The decision which forced the second United States bank to close its doors was reached through an appeal to the promotive instincts of the people, and the demand for new capital in promotive enterprises completely overbalanced the demand for safety to commercial credit. A well-established and conservative commercial banking system was sacrificed to supply a new and fast developing community with funds needed for development even to the point of fostering speculation and carrying constructive work far beyond safe investment considerations. After the collapse of this bank it was found that a large part of its resources were in the form of unmarketable shares and bonds, and real estate purchased or held as security for loans. When the several states became embarrassed by excessive debts incurred in direct construction

The bank's
function as
agent of sale

Banks as pur-
chasers of
securities

of state works, or in aid of private enterprise devoted to this end, the relief offered was a fictitious market for bonds created by laws empowering the banks to invest their capital in securities, and hypothecate these bonds as security for note issues. In New York the amount of securities held between 1843 and 1853, as shown by state reports, was from twelve million to twenty million dollars. Wherever the free banking system was adopted this precedent was followed. In 1862 the national government in passing the national bank Act adopted the same method to support the market for its bonds. Its effect on the market for railway investments was indirect, though not less effective, in that it utilized practically all the banking capital of the country to assist in taking the government issue off the general investment market, thereby making it more free to invest in the bonds of railroads and other private enterprises. In other words, the net result of our banking laws since the adoption of the free bank acts has been to deprive commercial banks of the country of the free use of their capital, and to divert to the investment market the funds subscribed by their stockholders for the support of commercial credit.

The most active and direct support given by national and state banks to the capitalization of railroads has been supplied through permitting call loans and short time loans to speculators and investors, upon the security of collateral in the form of corporate issues. This practice, in time of great promotive activity, has resulted in the aggregate in providing millions of dollars of capital to companies for purposes of construction and equipment. This has been done in contravention of every principle of investment, and every principle of successful financial management, for it has enabled companies to obtain capital in exchange for floating debt, and this, too, in the most dangerous form. Facility has also been given to the practice by both state and

**Banks as
agencies of
capitalization
on floating
debt**

national laws governing banking reserves. The national bank Act permits a country bank to loan three-fifths of its legal reserve to a reserve city bank, and still to count the loan as a part of its banking reserves; it permits the reserve city bank to loan half of its legal reserves to a central reserve city bank, and still count the loan as a part of its legal requirement; it permits the central reserve bank to borrow *ad libitum* to make up its legal reserve requirement by any method of borrowing which may be arranged. The result is that in the central reserve cities (the points where the large stock and bond exchanges are located) many millions of dollars accumulate, which may be used to advantage only through loans to speculators and margin purchasers of new corporate issues. It is this practice which has given such great facility to the floating of new capital issues in financial centres. Incidentally it has contributed more to overthrow investors' judgment, and to cripple the commerce of the nation than any single financial practice which has developed as a result of the ever-present demand for capital for internal improvement.

UNDERWRITING AND HOLDING SYNDICATES

The financial agent of to-day is a banker, but a banker in a different sense than is ordinarily understood by the term. His function is that of the middleman, supplying customers with investments, and thereby providing purchasers for the securities of corporations which are seeking capital. He "finances" new enterprises, furnishing funds for the expenses of organization, with the assurance that his standing in the financial world is such as to enable him to place the securities whenever market conditions warrant.

Before a banking house will advance money in aid of a project, or undertake to market securities, it will usually require that an exhaustive examination be made into its

condition and prospects. If the finding is satisfactory, and the general industrial, financial, and stock-market conditions are favorable, the details of the financing will be worked out in conference. Here the wide experience of the banker and his intimate knowledge of financial affairs make his judgment final as to the form of security to be offered, the amount to be issued, and the price. If the financial market is undergoing a depression and there is already a surfeit of new capital issues awaiting the demands of investors, a new proposition will receive little consideration, or it will be deferred indefinitely; and it is the ability of the banker thus to sense market conditions which protects his house and its clientele. Every banking house has among its customers investors who rely absolutely upon its advice in the matter of investments. Some can always be counted upon to take an interest in any new security which is thus recommended. When, therefore, a new project is of sufficient promise to warrant the bank to handle its securities, its chances of success are good.

The charge of the banker for this service will vary with the circumstances of each issue, ranging from two and a half per cent if the securities are merely placed, to ten per cent if their sale is guaranteed. Not infrequently a bonus is also exacted in the form of stock or junior bonds. The first mortgage bonds are sold; but as the other securities usually have little immediate value, they may be held until with the development of business the revenues of the new company warrant a return upon its inferior securities. This furnishes the banker's opportunity. With the control which his ownership of the securities affords, he can determine the time and the amount of the division of profits. It is therefore an easy matter for him to unload his holdings at a figure which will allow a return for his expert counsel, his position

Conditions precedent to accepting risk

The profits of financing

of advantage in financial circles, and the risk attending the advancement of funds by his customers.

It is a matter of great convenience for a railroad which is bidding for capital to obtain it in bulk through the sale of an entire issue of securities to a single buyer. It is important, furthermore, to have the assurance that the funds will be forthcoming at the time they are needed, regardless of the fluctuating conditions of the market. It is customary, therefore, to obtain an agreement which will insure this end. This practice is known as "underwriting."

The term "underwrite" implies the assumption of a risk, and as employed in finance it signifies the insuring or guaranteeing of a market for securities. This is a contract under which the banker agrees to take an issue of securities at a specified time and price. The banker disposes of these securities as opportunity offers, suffering the loss if they have to be kept for a long period, or if they must be sold below the purchase price. Where only a few millions are involved a single bank may conduct the underwriting, but when business is offered which is larger than one bank can prudently handle a syndicate may be formed to divide the risk. The contract with the issuing corporation is first arranged in all its details. The bank now appears as syndicate manager; but two or more banks often act as joint managers.

The underwriting syndicate as we know it was first employed in this country in 1871 in connection with the sale of United States bonds by Jay Cooke, who had made a study of the working of the French *syndicats* while negotiating for the sale of Northern Pacific bonds in Europe.¹ Its use in England appears to date from about the same time, for in 1873 the London Economist called attention to the frequent reference, "of late years," to syndicates, especially in connection with the marketing of new securities. It also gave

¹ Oberholtzer, Jay Cooke, II, 275.

this definition: "An association of persons who guarantee the subscription of the issue either wholly or partially, each guarantor usually accepting the responsibility for so much to the actual contractors."¹

Preliminary to the organization of a syndicate the manager will send out notices to other banks and to individuals well known to him, describing the nature of the undertaking and inviting participation; or, as is more often the case, giving notice that certain allotments of securities have been reserved. Participation in a syndicate is a privilege which is granted only to those whose influence will serve to widen the market for the securities, or whose good-will as large purchasers of securities it is advantageous to get and retain. It is obvious that a well-distributed underwriting is a source of strength in marketing securities, because each participant may be counted upon to do everything possible to create a demand and dispose of the issues to its clientele. Upon acceptance of an interest in the venture the formal agreement is sent to each participant or underwriter for his signature. Usually there is little hesitation over the matter of acceptance if a strong house has undertaken to underwrite, for to decline an allotment would remove one's name from the list which will be used in organizing future syndicates.

Underwriting originally took the form of an obligation on the part of participants to take within a specified time and at a specified price such securities as had not been disposed of by the manager, in proportion to the several amounts underwritten. Recent examples of the use of this method may be given. In 1903 the Pennsylvania railroad announced an increase in its share capital of from \$251,000,000 to \$400,000,000. When the outstanding shares were quoted at 143, the company offered to stockholders the privilege of subscribing to \$75,000,000 of the new issue at 120. At

¹ *Economist*, XXXI, 994.

that time it was not thought desirable to have an underwriting. But the old stock having fallen to 125, and the full quota of stockholders' subscriptions not having been obtained, recourse was had to bankers who guaranteed subscriptions to all the stock at 120 in consideration of a commission of two and a half per cent on the entire issue. The announcement of this agreement had the effect of causing the stockholders to accept their privilege. The advantage to the company is shown by the fact that within the year Pennsylvania stock was quoted as low as 111. The Union Pacific in 1907 offered \$75,000,000 of four per cent convertible bonds at 90 to stockholders at the rate of one bond for forty shares of stock. In order to insure the success of the issue an underwriting syndicate was formed which guaranteed the placing of the bonds in return for a fee of \$1,875,000, of which \$375,000 went to the syndicate managers. A decline in Union Pacific stock set in almost immediately, and before the subscription date the new bonds were quoted below the price at which they had been offered to the stockholders, finally reaching a fraction above 78. Only \$2,000,000 of the bonds were taken by the stockholders; and while the company received its money without delay, the syndicate was compelled to take over almost the entire issue. But the Atchison, also in 1907, invited its stockholders to take at par \$26,000,000 of five per cent convertible bonds to the extent of twelve per cent of their holdings. No underwriting of any kind was provided, and less than \$9,000,000 were disposed of at that time. The company was compelled, therefore, to defer certain improvements which might have been carried on at low cost on account of the general condition of depression.

According to this method of underwriting there need be no advance of cash in case the entire issue should be disposed of, and each participant would receive a commission of from two and a half to five per cent upon his maximum risk.

But frequently some time must elapse after the agreement is entered into before it is considered expedient to offer the securities for sale. In such a case a purchasing syndicate is formed, and the securities are distributed among the participants of the purchasing syndicate as soon as they are delivered. By this method the money required to finance the enterprise must first be advanced by the purchasing syndicate, and as the sale progresses the allotments of securities are called back by the manager, who returns the amount advanced by the purchasing syndicate. Should the term of the syndicate agreement expire before a market is found for all of the securities, the underwriters are left with the balance upon their hands, which they may dispose of as opportunity offers.

A common method of financing a syndicate is this: The syndicate managers will arrange a loan from some bank or trust company for such sum or sums of money as may be needed to control the properties or make advances for construction and operation during the period covered by the underwriting, the issues underwritten being used as collateral for the loan. As sales of securities are made, or when the underwriting expires and the underwriters take over the unsold balance of securities, the syndicate loan is paid and the securities held as the collateral is released. The transaction may be carried through on practically the same lines before the corporation issues the securities by means of participation certificates. If the underwriting results as favorably as is expected no capital is required, and the transaction takes on the aspect of a friendly relation with a bank which permits the borrowing of large sums of money on favorable terms.

Sometimes the members of a syndicate are permitted to withdraw for their own use securities to the amount for which they are responsible, thereby relinquishing their

share of the profits upon the underwriting, but obtaining investment securities at a lower price than would otherwise be possible. During the sale, however, every effort is made to keep the issue off the "street," and to this end syndicate managers usually reserve the right to buy back for the syndicate any securities which may come into the market up to a certain limit. This is done to prevent a break in prices on account of reselling by those who for any reason may throw over their holdings to prevent individual loss. After the expiration of the agreement, reselling affords a test of the standing of the securities upon the market.

Underwritten securities may be offered directly for public subscription, or they may be disposed of at private sale. In most cases both methods are employed. A public offering is advertised several weeks in advance, and bids are invited subject to the provision that the manager may reject any or all applications, or allot a smaller amount than is bid for. In the Pennsylvania first mortgage bond issue of 1908 the securities were over subscribed many times, and applicants for small allotments got nothing, while large bidders received only a small portion of the amounts which they sought. In the case of such an amply secured issue of bonds by a well-known corporation like the Pennsylvania, this method is often the most satisfactory, but few railroads have the unencumbered property required to furnish such an attractive security, and still fewer possess the general credit that is enjoyed by this company. To dispose of many issues, therefore, it is necessary to enlist the services of traveling salesmen, who seek to place the securities with the particular classes of investors to which they are best adapted. Thus, one variety of bonds will be of the sort which is suitable for estates and trust funds; others will be adapted to the needs of national banks; still others, to savings institutions. Cer-

**Individual
withdrawals**

**Sales of under-
written secu-
rities**

tain states allow domestic corporations to assume the tax upon their securities, and in this way exempt those in the hands of investors; the salesmen will endeavor to place the securities thus favored among investors and institutions which may profit from the exemption. Usually non-participating bankers are allowed a commission of about one-fourth of one per cent upon all securities which they dispose of, as are the members of the syndicate when acting as selling agents. When two or more houses work together as managers, one may remain inactive; or there may be a division of territory. The general public is appealed to through the medium of advertisements in periodicals and circulars setting forth the nature of the securities, and inviting correspondence with a view to subscription.

For their services as syndicate managers, the banks charge a commission on par of securities purchased by the syndicate. Sometimes this charge is split so that one-half is figured upon the purchase and one-half upon the sale. The effect of this arrangement is to allow a rebate to participants upon whatever securities remain unsold. Syndicates have made large profits, especially in the late nineties, and in the period of speculative activity which came to an end in the early months of 1907. When this end came, many syndicates were dissolved at a loss, and the participants were left with large amounts of securities on their hands for which there was no immediate promise of a market. This emphasizes the element of risk, and shows that the large syndicate profits which are made in periods of active demand for securities may be considerably reduced by operations in times when demand is suddenly withdrawn and the underwriters are forced to sell at a loss.

Railroads have extended so widely over the country that there is now greater need for the improvement and extension of existing lines than for the undertaking of new enter-

Possibilities
of loss

prises. Control of railroad systems, moreover, has passed into the hands of a comparatively few capitalists whose affiliated banks exert their influence to discourage new projects which threaten to compete either for traffic or for construction funds. So, while projects for the building of small independent roads are still frequently laid before the banking houses of the country, few bankers care to risk antagonizing the great financial powers from whom they may some day need to ask for accommodation.

In a few instances railroad promoters, whether from necessity or choice, have been able to finance their enterprises without the aid of Wall Street, but such cases are so rare as to be conspicuous. When, a generation ago, James J. Hill appealed to New York capitalists for funds with which to build a new transcontinental railroad through the Northwest, his proposition was dismissed with abruptness, and with some ridicule. He thereupon obtained capital in Amsterdam, and afterwards formed a connection with the Bank of Montreal which bought control from the Dutch bankers. With this aid he was able to build the Great Northern railway, and to establish himself in a dominant position in the territory served by that line. David H. Moffat, of Denver, who is now engaged in building the Denver, Northwestern, and Pacific between Denver and Salt Lake, was unable to obtain New York capital for his enterprise in face of the opposition of the Denver and Rio Grande and Union Pacific interests represented by Gould and Harriman. He went ahead, however, on his own funds, supplemented by the proceeds of a small amount of bonds which he was able to sell to European bankers. In 1907 he was forced to call in more outside aid, and, having interested several prominent capitalists of the Mormon church in his plans, the final success of his project is assured. Henry H. Rogers, from

**Influence of
the great
houses**

**Conspicuous
independent
operations**

motives of choice, attempted to finance his Virginian railway without recourse to the banks, but with the stringency of the money market in 1907 he found it necessary to go to bankers to obtain capital through an issue of short-term notes at a high rate of interest.

CHAPTER XVIII

BIBLIOGRAPHY

I

THERE is an abundance of material upon railroad promotion, but for many phases of the subject reference can be made only to general sources. Charters appear in the session laws. They have been analyzed by B. H. Meyer in several monographs, and in his *Railway Legislation in the United States*. Noteworthy discussions upon Charters charter evolution appear in Sterne's opening address, — *The Railway Problem in the State of New York*, — before the Hepburn committee, and in Adams' brief article on *Railroad Legislation*. For a general consideration of the law of promotion, reference may be had to Alger's *Treatise on the Law in Relation to Promoters*.

The prospectus literature issued by railroad promoters constitutes the best source of information upon Methods of appeal the methods of appeal for financial support. Much of it originally appeared in pamphlet form, in Hunt, DeBow, and similar periodicals, and also in local newspapers. Reports of the proceedings of promotion meetings and conventions are also to be found in these journals.

Annual reports of railroad companies are prepared for the individual stockholder, and so furnish some Individual support material upon the individual support given in response to the appeals of promoters. Railroad stocks and bonds have always been the most promi-

nent securities dealt in upon the stock market, and something upon this topic is therefore to be found throughout the periodical literature of investments; notably, in the American Railroad Journal, Hunt, Bankers' Magazine, Wall Street Journal, and Commercial and Financial Chronicle. The first manual or investor's guide appears to have been Stow's Capitalist's Guide and Railway Annual, a single volume of which was published in 1859. Poor's History of the Railroads and Canals of the United States, the forerunner of his Manual, appeared in 1860. No further volumes were published. Ashcroft's Directory of the Railroads of North America, published annually throughout the sixties is the best of several contemporary publications of similar nature. Poor's Manual of the Railroads of the United States dates from 1868, and Lyle's Official Railway Manual, by far the most satisfactory of these early manuals, was started about the same time. Vernon's American Railroad Manual, published in 1873 and 1874, is largely given over to historical matter, though without neglecting financial subjects. It is the most convenient source of reference for any point in early American railroad history. All of these manuals abound in errors, but critically handled they possess decided value. Poor is the only one which has survived. The Manual of Statistics first appeared in 1879, and Moody's Manual of Railroad and Corporation Securities began publication in 1900.

Items upon the subject of local aid are scattered throughout the files of the American Railroad Journal and Hunt. Usually an examination of local newspapers and town and county histories discloses material of suggestive value, though always of questionable accuracy. Records of local bonded indebtedness appear in the United States census reports, but usually with nothing to indicate the purpose for which the bonds were issued, or the original amount of debt. In some states a register of local debt has been published in

the annual report of the state auditor. Estimates of the aggregate of local aid to railroads have been compiled for several states. Most of these are incomplete, and in some instances where a fairly comprehensive statement has been prepared, an undetermined amount of aid has been granted subsequent to the date of the report. Two studies of collateral phases of municipal activity contain material upon local railroad aid. Hollander's *Financial History of Baltimore* treats in detail of the relations between that city and the Baltimore and Ohio, Western Maryland, and other railroads; and the subsidizing activities of Philadelphia are recorded in Allinson and Penrose's *Philadelphia; a History of Municipal Development*.¹ In its legal aspect the subject of local aid is treated in Reid's *Treatise on the Law Pertaining to Corporate Finance*, Beach's *Modern Law of Railways*, Pierce's *Treatise on the Law of Railroads*, Elliott's *Treatise on the Law of Railways*, and Wood's *Treatise on the Law of Railways*.

State railroad subsidies have been considered in a number of special studies, though often only as incidental to the treatment of a larger subject. Million's *State Aid to Railways in Missouri* is the most ambitious attempt of this sort. It gives in detail the history of subsidies in Missouri, and outlines the history of state aid in all the Southern states. McVey's *State Aid to New York Railways*, and Tingley's *Bond Subsidies to Railroads in Nebraska* are short articles, but both are contributions to the subject. Both Martin's *Internal Improvement in Alabama* and Weaver's *Internal Improvements in North Carolina* consider the matter of railroad aid. Weaver's monograph extends only to the Civil war period, and its treatment of railroad matters is limited to a few pages. A valuable discussion of state aid in Alabama appears in Fleming's *Civil War*

¹ To these may be added a third, Larson's *Financial and Administrative History of Milwaukee*, which has recently appeared.

and Reconstruction in Alabama. Most works upon reconstruction necessarily deal with railroad subsidies, but few are without extreme bias. Wooley's Reconstruction of Georgia is an impartial study, but its treatment of the railroad bond frauds is inadequate. An account of railroad subsidies in Tennessee appears in Phelan's History of Tennessee.

Subsidies create debt, and some works upon state finance therefore consider the subject of railroad aid. Bullock's Historical Sketch of the Finances and Financial Policy of Massachusetts gives much attention to this subject, as does Hanna's Financial History of Maryland. Trotter's Observations on the Financial Position of the States contains a fairly accurate record of the state subsidies granted in the thirties. An important contribution to the financial history of this early period is the article of Judge Curtis on the Debts of the States, which contains a thorough discussion of the financial policy of those states whose treasuries had been threatened through the direct construction of state works or the subsidizing of railroads. Scott's Repudiation of State Debts gives the main facts connected with the issue of those subsidy bonds which were afterwards compromised or repudiated. Porter's State Debts and Repudiation discusses the same subject within the limits of a magazine article. A record of state debts is given in the United States census, but the limitations of the material in these reports have already been pointed out.

Scattered through the state documents there is much valuable material upon railroad aid. Statements of bonded debt appear in the reports of the auditor or comptroller. These may be supplemented by the governors' messages, and special reports of legislative committees, executive officials, etc. This documentary material will soon be more available through the Carnegie Institution's Index of Economic Material in Documents of the States, which is now in preparation under the direction of Adelaide R. Hasse.

Federal aid in the form of remission of tariff duties is considered in a chapter in Haney's Congressional History of Railroads, I. The controversial writings of Henry C. Carey and others upon this subject have only incidental bearing upon its subsidy phase.

The first authority upon land grants is Sanborn's Congressional Grants of Land in Aid of Railways. This emphasizes the political more than the economic side of the subject, but it is full, clear, and generally accurate in detail.

Federal aid Ford's article in Lalor, — Public Lands of the United States, — contains a good, brief discussion upon railroad grants. Drummond's chapter on Land Grants in Aid of Internal Improvements is valuable for its treatment of the earliest grants. Haney's Congressional History of Railroads also considers the grants of the period before the Civil war. Donaldson's Public Domain contains material upon all phases of the subject. Smalley's History of the Northern Pacific Railroad, Davis' Union Pacific Railway, and White's History of the Union Pacific Railway necessarily give considerable attention to land grants.

Land grants Julian's articles, — Railway Influence in the Land Office, and Our Land Grant Railways in Congress, — point out some of the abuses of the system. The railroad side is best presented in Talbott's pamphlet on Railway Land Grants. Statistical records of the grants appear in the annual reports of the commissioner of the general land office, in the Report of the Public Lands Commission of 1905, and in the Statement Showing Land Grants Made by Congress to Aid in the Construction of Railroads, which completes the record through 1907. Elliott's Treatise on the Law of Railways contains a chapter on Land Grants.

Bond aid to the Union Pacific is treated in the histories of Davis and White. Davis lays stress upon the political problems concerned in the obtaining of the grant, while

White deals more particularly with the financial problems arising under the loan. The Central Pacific loan is considered in the Bancroft History of California, VII, and in a number of controversial pamphlets upon the subject of refunding. The Report of the Pacific Railway Commission of 1887 is given over to detailed consideration of the Pacific railroad debt, and the accompanying testimony presents most of the essential facts upon the subject. H. R. Meyer's article on the Settlement with the Pacific Railways is a clear and adequate statement of the ultimate closing out of the debt.

The operations of financial institutions as funding agencies for railroads have received little attention from writers on finance. The railroad banks of Michigan were the original "wild-cat" banks, and the state banks which flourished in the West in the second quarter of the last century were actively engaged in the furtherance of transportation development; yet their history has been considered for the most part from the standpoint of the currency, to the neglect of the securities against which their notes were issued. Two brief articles which have to do with the operations of the Michigan railroad banks are Felch's Early Banks and Banking in Michigan, and Utley's Wild-cat Banking System of Michigan. Brough's monograph on the History of Banking in Mississippi contains but a single reference to the railroad banks in that state, and Sumner's History of Banking is equally unsatisfactory in this particular. The railroad banks in Georgia are the only ones which have received adequate treatment at the hands of the economic historian. Phillips' History of Transportation in the Eastern Cotton Belt considers these institutions in detail, and also devotes some attention to the South Western Railroad bank.

The funding methods of the modern banking house are set forth in Greene's article on The Railroads and Wall Street.

The subject is considered in a chapter in Nelson's Bond Buyers' Dictionary, which also contains a good discussion of the methods of underwriting syndicates. Two brief articles on underwriting are Seligman's Underwriting the Sale of Corporate Securities and Stevenson's Underwriting. Though dealing specifically with industrial corporations, Meade's Trust Finance contains much discussion upon underwriting which is capable of general application. A source reference for this subject is the Testimony taken at the New York life insurance investigation of 1905, with the supporting documents. References to the legal cases upon the subject are to be found in a note on Relations and Rights of Syndicate Members, in Lawyers' Reports Annotated, XL.

II

- Abbott, Lyman. The American railroad. Harper's Magazine, N. Y., 1874: XLIX, 375-94.
- Ackerman, William K. Early Illinois railroads. Chicago, 1884. 174 pp.
- Historical sketch of the Illinois-Central railroad, together with a brief bibliographical record of its incorporators and some of its early officers. Chicago, 1890. 153 pp.
- Adams, Charles Francis, Jr. The canal and railroad enterprise of Boston. Winsor, The memorial history of Boston. Boston, 1881: IV, 111-50.
- Railroad legislation. Anon. American Law Review. Boston, 1867: II, 25-46.
- Same. Merchants' Magazine and Commercial Review. N. Y., 1867: LVII, 339-55.
- Railroad subsidies. Anon. Nation. N. Y., 1870: XI, 219-20.
- Railroads: their origin and problems. N. Y., 1878. 216 pp. Also published under the title, "Railroads and Railroad Questions."
- Adams, Henry Carter. Public debts, an essay in the science of finance. N. Y., 1887. 407 pp.

- Alger, Arthur Martineau. A treatise on the law in relation to promoters and the promotion of corporations. Boston, 1897. 302 pp.
- Allen, Horatio. The railroad era. First five years of its development. N. Y., 1884. 32 pp.
- Allen, William Harvey. The charter tax of the Illinois-Central railroad. *Journal of Political Economy*. Chicago, 1898: VI, 353-67.
- Allinson, Edward Pease, and Boies Penrose. Philadelphia, 1681-1887; a history of municipal development. Philadelphia, 1887. 392 pp.
- Johns Hopkins University, Studies in Historical and Political Science, extra volume II.
- American Almanac and Repository of Useful Knowledge. Boston, 1830-56.
- The American Quarterly Register and Magazine. Philadelphia, 1848-51.
- Editor, James Stryker.
- American Railroad Journal. N. Y., 1832-86. Weekly. (Semi-monthly, 1838-43; monthly, 1844.)
- Editors: D. Kimball Minor, George C. Shaeffer, Henry Varnum Poor, John H. Schultz, George F. Swain, Matthias Nace Forney.
- Various changes of sub-title. Published in Philadelphia, 1846-9. Continued as "Railroad and Engineering Journal"; since 1893, "The American Engineer and Railroad Journal."
- The American Railway Review. N. Y., 1859-61 + ?. Weekly.
- Anderson, James. On cast-iron rail-ways. Recreation in Agriculture, Natural History, Arts and Miscellaneous Literature. London, 1801: IV, 198-21.
- Arfwedsen, Carl Davis. The United States and Canada, in 1832, 1833, and 1834. London, 1834. 2 v.
- Canals and railroads, II, 261-8.
- Ashcroft, John (compiler). Ashcroft's railway directory, containing an official list of the officers and directors of the railroads in the United States and Canada, together with their financial condition and amount of rolling stock. N. Y., 1861-70 + ?. Annual.
- Avery, Benjamin Parke. The building of the iron road. *Overland Monthly*. San Francisco, 1869: II, 469-78.
- Avery, Isaac Wheeler. History of the state of Georgia, 1850-81. N. Y., 1881. 754 pp.

- Bacon, Nathaniel F. American international indebtedness. Yale Review. New Haven, 1900: IX, 265-85.
American securities in Europe.
- Bailey, W. F. The story of the Central Pacific. Pacific Monthly. Portland, 1908: XIX, 13-27, 201-14.
- The story of the Oregon railroad. Pacific Monthly. Portland, 1907: XVII, 549-61.
- The story of the Shasta route. Pacific Monthly. Portland, 1907: XVII, 363-77.
- The story of the Union Pacific. Pacific Monthly. Portland, 1908: XX, 67-75, 213-21.
- Baker, George Bartrick. American and British railway stocks. Contemporary Review. London, 1891: LX, 593-607.
- Baker, G. W. A review of the relative commercial progress of the cities of New York and Philadelphia, tracing the decline of the latter to state development, and showing the necessity of trans-Atlantic steamship communication to re-establish foreign trade. Philadelphia, 1859. 72 pp.
- Baldwin, Simeon Eben. American railroad law. Boston, 1904. 770 pp.
- Baltimore. Report of the commission to investigate the affairs of the Western Maryland railroad company and the interest of the city therein, together with the report of Stephen Little, expert accountant, and H. T. Douglas, expert engineer. Baltimore, 1893. 75 + 90 + 36 pp.
- Bancroft, Hubert Howe [Frances Fuller Victor]. Chronicles of the builders of the commonwealth. San Francisco, 1891-2. V and VI.
Biographical sketches of railroad men.
- History of California. San Francisco, 1890.
Pacific railroads, VII, 495-635.
- Bankers' Magazine. N. Y., 1846—. Monthly.
- Barkworth, T. E. Eminent domain, its growth and limitations. Michigan Political Science Association, Publications. Ann Arbor, 1894: I, 121-9.
- Barnum, R. L. The railroads dismiss their bankers. Van Norden Magazine. N. Y., 1907: II, no. III: 112-3.
- Bates, Theodore Cornelius. Address. Tenth anniversary of the

- opening of the North Brookfield railroad and the freedom of the town from debt. North Brookfield (Mass.), 1885. 39 pp.
- Beach, Charles Fisk, Jr. The modern law of railways. San Francisco, 1890. 2 v.
- Beard, Henry. The railways and the United States land office. N. Y., 1883. 24 pp.
- Extract from the Agricultural Review, April, 1883.
- Bell, William A. The Pacific railroad. Fortnightly Review. London, 1869: XI, 562-78.
- Benton, Thomas Hart. Letter from Col. Benton to the people of Missouri. Central national highway from the Mississippi river to the Pacific. n. p., 1853. 24 pp.
- Billings, Frederick. The Northern Pacific railroad company; its history and equitable rights. Address to the committee on Pacific railroads of the house of representatives. n. p., 1880. 19 pp.
- Bishop, Avard Longley. Corrupt practices connected with the building and operation of the state works of Pennsylvania. Yale Review. New Haven, 1906: XV, 391-411.
- The state works of Pennsylvania. Connecticut Academy of Arts and Sciences, Transactions. New Haven, 1907: XIII, 149-297.
- Bishop, James Leander. A history of American manufactures from 1608 to 1860. Philadelphia (3 ed.), 1868. I and II.
- Contains scattered notes on canal and railroad development.
- Bishop, Judson W. History of the St. Paul and Sioux City railroad, 1864-1881. Minnesota Historical Society, Collections. St. Paul, 1905: X, 399-415.
- Blake, Henry Taylor. The Pacific railroads and the government. New Englander. New Haven, 1878: XXXVII, 490-513, 642-69.
- Bliss, George. Historical memoir of the Western railroad. Springfield (Mass.), 1863. 190 pp.
- Bloodgood, Simeon DeWitt. Some account of the Mohawk and Hudson railroad. American Journal of Science. ["Silliman's."] New Haven, 1832: XXI, 141-8, 385-6.
- Bloomfield, Joseph E. First application of steam to railways. Hunt's Merchants' Magazine and Commercial Review. N. Y., 1846: XIV, 249-60.
- Influence of internal improvements on the growth of commercial

- cities. Hunt's Merchants' Magazine and Commercial Review. N. Y., 1845: XIII, 259-63.
- Bolles, Albert Sidney. Industrial history of the United States. Norwich, 1878. 936 pp.
- "Shipping and railroads," book III.
- Bowen, Ele. Rambles in the path of the steam horse. Philadelphia, 1855. 432 pp.
- Baltimore and Ohio.
- Bowker, Richard Rogers, and George Iles (compilers.) The reader's guide in economic, social and political science. N. Y., 1891. 169 pp.
- Railroads, 47-51.
- Briscoe, P. The first Texas railroad. Texas Historical Association, Quarterly. Austin, 1904: VII, 279-85.
- Bromley, Isaac Hill. Pacific railroad legislation, 1862-1885. Anon. Boston, 1886. 75 pp.
- Brown, Joseph Emerson. The bond question and the financial policy of the state. Atlanta, 1873. 16 pp.
- Brown, William H. The history of the first locomotives in America, from original documents, and the testimony of living witnesses, N. Y. (rev. ed.), 1874. 246 pp.
- The history of the first locomotives in America, together with other valuable and interesting information from original documents and testimony of living witnesses. Philadelphia, 1877. 48 pp.
- Brownson, Howard G. A history of the Illinois Central railroad. In preparation.
- Bullock, Charles Jesse. Historical sketch of the finances and financial policy of Massachusetts, from 1780 to 1905. N. Y., 1907. 144 pp.
- American Economic Association, Publications (3 ser.), VIII, 263-412.
- Bullock, Rufus Brown. Address to the people of Georgia. A review of the revolutionary proceedings of the late repudiating legislature. n. p., 1872. 59 pp.
- Burgess, Josiah J. (compiler). Burgess' railway directory, containing an official list of all officers of the railroad and telegraph companies of the United States and Canada, together with their financial

- condition, etc., compiled from official reports. N. Y., 1861?-6 + ? Annual.
- Callender. Guy Stevens. The pioneers of American industry. La Follette, The making of America. Philadelphia, 1906: III, 8-48.
- From Quarterly Journal of Economics ("The early transportation and banking enterprise of the states in relation to the growth of corporations"). Boston, 1903: XVII, 111-62.
- Camden and Amboy Railroad and Transportation Company. Address of the joint board of directors of the Delaware and Raritan canal and Camden and Amboy railroad companies to the people of New Jersey. Trenton, 1848. 30 pp.
- An investigation into the affairs of the Delaware and Raritan canal and Camden and Amboy railroad companies in reference to certain charges by "A Citizen of Burlington." Newark, 1849. 78 pp.
- Carey, Henry Charles. A review of an address of the joint board of directors of the Delaware and Raritan canal and Camden and Amboy railroad companies to the people of New Jersey. By "A Citizen of Burlington." Philadelphia, 1840. 83 pp.
- Review of the report of the late commission for investigating the affairs of the joint companies, and of the operations of the managers of these companies. By "A Citizen of Burlington." Philadelphia, 1850. 78 pp.
- Carey, Matthew. Essay on railroads. By "Hamilton." Philadelphia (2 ed.), 1830. 26 pp.
- Internal improvements. Correspondence between the Pennsylvania society for the promotion of internal improvements and William Strickland. Philadelphia, 1825. 6 pp.
- Internal improvements. Address of the Pennsylvania society for the promotion of internal improvements in the commonwealth to the citizens of Pennsylvania. Anon. Philadelphia, 1825. 10 pp.
- Railroads. By "Fulton." Philadelphia, 1827. 4 pp.
- Carter, T. J. Railroad progress, transportation, and management. Springfield (Ill.), 1873. 42 pp.
- Caruthers, C. H. The first railroad owned and operated by a government. Railroad Gazette. N. Y., 1906: XLI, 163-8.
- Carver, Hartwell. A memorial for a private charter asked for by Dr.

- Hartwell Carver and his associates, to build a railroad from some point on the Mississippi or Missouri rivers, or from Lake Michigan to the Pacific ocean. [Washington, 1849.] 8 pp.
- Proposal for a charter to build a railroad from Lake Michigan to the Pacific ocean. Washington, 1847. 38 pp.
- Cary, Ferdinand Ellsworth. Lake Shore and Michigan Southern railway system and representative employees. Anon. Buffalo and Chicago, 1900. 947 pp.
- Cary, John Watson. The organization and history of the Chicago, Milwaukee and St. Paul railway company. Milwaukee, 1893. 392 pp.
- Chandler, Charles Henry. An historical note on the early American railways. Wisconsin Academy of Sciences, Arts, and Letters, Transactions. Madison, 1898: XII, 317-24.
- Boston and Lowell.
- Chanute, Octave. Engineering progress in the United States. American Society of Civil Engineers, Transactions. N. Y., 1880: IX, 217-58.
- Chapman, W. W. The Northern Pacific railroad. Its different phases from 1864 to 1880. Washington, 1880. 15 pp.
- Chesapeake and Ohio Railroad Company. History of the Chesapeake and Ohio railroad company. Richmond, 1868. 49 pp.
- Chevalier, Michel. Die eisenbahnen im vergleich mit den wasserstrassen; aus dem französischen übersetzt von F. L. Linder. Stuttgart and Tübingen, 1838. 37 pp.
- Histoire et description des voies de communication aux États-Unis, et des travaux d'art qui en dependent. Paris, 1840-3. 2 v.
- Society, manners and politics in the United States; being a series of letters on North America. Boston, 1839. 467 pp.
- Les voies de communication aux États-Unis. Paris, 1837. 48 pp.
- Church, William Conant. The Pacific railroad. Galaxy. N. Y., 1867: IV, 482-91.
- Churchill, George Charles Spencer (Eighth Duke of Marlborough). Virginia mines and American rails. Fortnightly Review. London, 1891: LV, 570-83, 780-97.
- Extract from first article in Engineering Magazine. N. Y., 1891: I, 315-23.
- Clark, T. C. Railway-engineering in the United States. Anon. Atlantic Monthly. Boston, 1858: II, 641-56.

- Clarke, S. A. The Oregon Central railroad. Oregon Historical Society, Quarterly. Portland, 1906: XII, 133-8.
- Colburn, R. T. A lecture on the railroad to the Pacific. N. Y., 1850. 16 pp.
- Colburn, Richard Theodore. The Pacific railway debts. American Academy of Political and Social Science, Annals. Philadelphia, 1895: V, 684-704.
- Cole, Cornelius. Pending railroad questions. San Francisco, 1872. 15 pp. Subsidies.
- Commercial and Financial Chronicle, and Hunt's Merchants' Magazine. N. Y., 1865- . Weekly.
- ✓ Crane, Lauren E. Newton Booth of California; his speeches and addresses. N. Y., 1894. 521 pp.
- Crawford, Jay Boyd. The Credit Mobilier of America, its origin and history. Boston, 1880. 229 pp.
- Crocker, George Glover. From the stage-coach to the railroad train and the street car. Boston, 1900. 32 pp.
- Crooks, William. The first railroad in Minnesota. Minnesota Historical Society, Collections. St. Paul, 1905: X, 445-8.
- Cruise, P. Baltimore and Ohio railroad. Anon. North American Review. Boston, 1827: XXV, 62-73.
- Baltimore and Ohio railroad. Anon. North American Review. Boston, 1829: XXVIII, 166-86.
- Currier, Festus C. Reminiscences of Festus C. Currier. Fitchburg, 1900. 106 pp.
- Curtis, Benjamin Robbins. Debts of the states. Curtis, Memoir of Benjamin Robbins Curtis, with some of his professional and miscellaneous writings. Boston, 1879: II, 93-148.
- From North American Review. Boston, 1844: LVIII, 109-57.
- Curtis, Samuel Ryan. Proceedings of a Pacific railroad convention at Lacon, Illinois; with the address of Col. Samuel R. Curtis. Cincinnati, 1853. 16 pp.
- Davis, John Patterson. The Union Pacific railway. Chicago, 1894. 247 pp.
- The Union Pacific railway. American Academy of Political and Social Science, Annals. Philadelphia, 1896: VIII, 259-301.
- Dearborn, Henry Alexander Scamwell. Letters on the internal improvements and commerce of the West. Boston, 1839. 75 pp.

- De Bow, James Dunwoody Brownson. The industrial resources, etc., of the Southern and Western states. New Orleans, 1853. 3 v.
Compilation of material from the Review.
- De Bow's Commercial Review of the South and West. New Orleans, 1846-64, 1866-70, 1879-80. Monthly.
- Dillon, Sidney. Driving the last spike of the Union Pacific. Scribner's Magazine. N. Y., 1892: XII, 253-9.
- Dodge, Grenville Mellen. Romantic realities. Transcontinental railways. Paper before the Society of the Army of the Tennessee, Toledo, 1888. Omaha, 1889. 23 pp.
- Same. N. Y., 1889. 50 pp.
- Donaldson, John J. Speech on the subject of the state of Maryland's relation with the Baltimore and Ohio railroad company. Baltimore, 1876. 84 pp.
- Donaldson, Thomas (compiler). The public domain; its history with statistics. Washington (2 ed.), 1884. 1343 pp.
U. S. document; serial 2158.
- Douglas, James. America's transcontinental lines. La Follette, The making of America. Philadelphia, 1906: IV, 270-93.
Revised from Cassier's Magazine. N. Y., 1901: XIX, 323-40, 469-85.
- Historical and geographical features of the Rocky mountain railroads. American Geographical Society, Journal. N. Y., 1885: XVII, 299-342.
- ✓ Doyle, John T. How to build railroads, mortgage them for twice their value before they are built, keep half the bonds and the railroad also. The value of such bonds as an investment. American Law Review. St. Louis, 1895: XXIX, 905-12.
Southern Pacific.
- Doyle, John T. (and others). The Central Pacific R. R. debt. California's remonstrance against refunding it. [San Francisco, 1897.] 29 pp.
- Memorial of the people of California against refunding the Pacific railroad debt. [San Francisco, 1896.] 4 pp.
- Drummond, Willis, Jr. Land grants in aid of internal improvements. Powell, Report on the lands of the arid region of the United States. Washington, 1878: 164-81.
U. S. document; serial 1805.

- Duke, James E. Some interesting land grants. *Van Norden Magazine*. N. Y., 1907, II: no. 1: 52-5.
- Dunning, William Archibald. Reconstruction, political and economic. N. Y., 1907. 378 pp.
- Dwight, Timothy. England and the United States:—agriculture, manufactures, and railroads. *New Englander*. New Haven, 1848: VI, 281-92.
- Eames, Edward L. The American railroad. *Magazine of Western History*. Cleveland, 1890: XI, 643-8, XII, 95-9.
- Earle, Thomas. A treatise on railroads and internal communication, compiled from the best and latest authorities, with original suggestions and remarks. Philadelphia, 1830. 120 pp.
- Edgeworth, Richard Lovell. On the practicability and advantages of a general system of railroads, and the means of carrying the same into effect. *Nicholson's Journal of Natural Philosophy, Chemistry and the Arts*. London, 1802 (2 ser.): I, 221-3.
- Elliott, Byron K. and William F. A treatise on the law of railways. Indianapolis (2 ed.), 1907. 5 v.
- Estee, Morris M. (and others). Pacific railroad debts. Anti-funding and foreclosure memorial of California state convention. [San Francisco], 1896. 29 pp.
- Eustis, W. T. The railroad enterprise; its progress, management and utility. *New Englander*. New Haven, 1851: IX, 321-44.
- Evans, Oliver. On the origin of steamboats and steam waggons. *Niles' Register*. Baltimore, 1812: III, addenda. 16 pp.
- Fairbairn, Henry. A treatise upon the political economy of railroads, in which the new mode of locomotion is considered in its influence upon the affairs of nations. London, 1836. 248 pp.
- Felch, Alpheus. Early banks and banking in Michigan. *Pioneer and Historical Society of Michigan, Pioneer Collections*. Detroit, 1880: II, 111-24.
- Ferguson, Edward A. (compiler). Founding of the Cincinnati Southern railway; with an autobiographical sketch. Cincinnati, 1905. 163 pp.
- Fernon, Thomas Sargent. Report to J. Edgar Thomson, president of the Pennsylvania railroad company [submitting results of observations concerning the tendencies of trade toward the seaboard through the West, north of the Ohio river]. Philadelphia, 1859. 44 pp.

- Fielder, Herbert. A sketch of the life and times and speeches of Joseph E. Brown. Springfield (Mass.), 1883. 785 pp.
State aid in Georgia.
- Fish, Stuyvesant. American railroads. Depew, One hundred years of American commerce. N. Y., 1895: I, 98-112.
- The development of American railways. La Follette, The making of America. Philadelphia, 1906: IV, 234-43.
- Seventy years of railway development. Railway Age. Chicago, 1902: XXXIII, 286-7.
- Same. ("Phases of railway progress.") Railway World. Philadelphia, 1902: XLVI, 283, 294-5.
- Fishback, William Pinckney. Railway financiering as a fine art. Arena. Boston, 1897: XVII, 996-1003.
- Flagg, Azariah Cutting. Debts and stocks of the several states. American Almanac and Repository of Useful Knowledge. Boston, 1840: 103-11; 1841: 130-3; 1842: 94-106.
- Flanagan, William M. Municipal aid to railroads. Virginia Law Journal. Richmond, 1891: XV, 465-6.
- Fleming, Walter Loring. Civil war and reconstruction in Alabama. N. Y., 1905. 815 pp.
"Railroad legislation and frauds," 587-605.
- Flint, Henry M. The railroads of the United States: their history and statistics. Philadelphia, 1868. 452 pp.
- Ford, Worthington Chauncey. Public lands of the United States. Lator, Cyclopædia of political science, political economy, and of the political history of the United States. Chicago, 1884: III, 493-513.
- Franklin Institute of the State of Pennsylvania. Journal. Philadelphia, 1826—. Monthly.
- Galton, Douglas. Reports to the lords of the committee of privy council for trade and foreign plantations, on the railways of the United States, with supplement. London, 1857-8. 2 v.
- Gaston, Joseph. The genesis of the Oregon railway system. Oregon Historical Society, Quarterly. Portland, 1906: VII, 105-32.
- The Oregon Central railroad. Oregon Historical Society, Quarterly. Portland, 1902: III, 315-26.
- George, Henry. Our land and land policy. N. Y., 1900. 345 pp.
"Railroad grants," 19-35.

Gerstner, Franz Anton, Ritter von. *Berichte aus den Vereinigten Staaten von Nord Amerika, ihrer eisenbahnen, dampfschiffahrten, banken, und andere öffentliche unternehmungen.* Leipzig, 1839. 67 pp.

— *Comparison of the railroads of Belgium with those of the United States.* Franklin Institute, Journal. Philadelphia, 1839 (n. s.): XXIV, 145-55.

— *Die innern communicationen der Vereinigten Staaten von Nord-america.* Vienna, 1842-3. 2 v.

— *Internal improvements in the United States.* Franklin Institute, Journal. Philadelphia, 1840 (n. s.): XXVI, 217-30, 289-301, 361-9.

— *Railroads in the United States.* Franklin Institute, Journal. Philadelphia, 1840 (n. s.): XXVI, 89-102, 227-30, 301-7; *American Railroad Journal and Mechanics' Magazine.* N. Y., 1840-1: XI, 279-81, 298-301, 342-4, 365-8, XII, 82-8.

The first and last articles in the first series are identical with the corresponding articles in the second series. Some of the articles in each series are accredited to Ludwig Klein, who was Gerstner's companion on his American tour, and his literary executor.

Gordon, Alexander. *A treatise upon elemental locomotion and interior communication.* London (2 ed.), 1834. 326 pp.

Grant, J. Lewis. *The early modes of travel and transportation.* Cayuga County Historical Society, Collections. Auburn (N. Y.), 1889: VII, 89-111.

Grant, William H. *The Hudson River railroad. Observations on the Western trade, and its influence upon the growth and prosperity of the cities of New York, Boston, and Philadelphia.* Poughkeepsie, 1846. 40 pp.

Extract — pages 14-23 — in Franklin Institute, Journal. Philadelphia, 1847 (n. s.): XLIII, 166-72.

Graser, Ferdinand H. *Railway finance fifty years ago.* Railway World. Philadelphia, 1906: L, 33-5.

Gray, Thomas ("of Nottingham"). *Observations on a general iron rail-way or land steam-conveyance: to supersede the necessity of horses in all public vehicles: showing its vast superiority in every respect, over all the present pitiful methods of conveyance by*

- turnpike roads, canals, and coasting traders. Containing every species of information relative to rail-roads, and loco-motive engines. London (4 ed.), 1823. 121 pp.
- Same. (5 ed.) 1825. 233 pp.
- First edition, 1820, was anonymous.
- Greene, Thomas Lyman. The railroads and Wall Street. Engineering Magazine. N. Y., 1892: III, 372-8.
- Griffin, J. S. The great lakes in relation to the railroad development of northern Wisconsin. State Historical Society of Wisconsin, Proceedings. Madison, 1899: XLVI, 211-25.
- Gruener, G. F. Railroad subsidies in the United States. Young Republican. New Haven, 1885-6: I, nos. 1-1V.
- Grund, Francis Joseph. The Americans in their moral, social, and political relations. London, 1837. 2 v.
- Internal navigation, railroads, etc., II, 181-232.
- Hadley, Arthur Twining. Railroad economy in the 19th century. The 19th century; a review of progress during the past one hundred years in the chief departments of human activity. N. Y., 1901: 443-53.
- Railroad transportation; its history and its laws. N. Y., 1885. 269 pp.
- Haight, Henry Huntley. Letters of Gov. Haight on the constitutional power of the legislature to authorize cities and counties to donate bonds to railroad corporations. Sacramento, 1870. 20 pp.
- Haines, Henry Stevens. Restrictive railway legislation. N. Y., 1905. 355 pp.
- Hale, Edward Everett. Memoirs of a hundred years. N. Y., 1902. 2 v.
- “Internal improvements,” I, 289-318.
- Hale, Nathan. Massachusetts railroad. Anon. North American Review. Boston, 1829: XXVIII, 522-37.
- Poussin on American railroads. Anon. North American Review. Boston, 1837: XLIV, 435-61.
- Remarks on the practicability and expediency of establishing a railroad on one or more routes from Boston to the Connecticut river. Anon. Boston, 1827. 71 pp.
- Remarks on the practicability of rail-roads from Boston to the Hudson river and from Boston to Providence. Anon. Boston, 1829. 64 pp.

- Haney, Lewis Henry. A congressional history of railways in the United States. Vol. I, Congress and the railway down to 1850. Madison, 1908. 273 pp.
 University of Wisconsin, Bulletin, Economics and Political Science series, III, 167-439.
- Hanna, Hugh Sisson. The financial history of Maryland (1789-1848). Baltimore, 1907, 131 pp.
 Johns Hopkins University, Studies in Historical and Political Science, XXV, 353-481.
 'Internal improvements and the state debt,' 70-104.
- Hasse, Adelaide Rosalie (compiler). Index of economic material in documents of the states of the United States. Washington, 1907-.
- Harris, Robert L. The Pacific railroad — unopen. Overland Monthly. San Francisco, 1869: III, 244-52.
- Hart, Albert Bushnell. The public land policy of the United States. Practical essays on American government. N. Y., 1893: 233-57. From Quarterly Journal of Economics ("The disposition of our public lands"). Boston, 1887: I, 167-83, 251-4.
- Hartman, Karl. Praktisches handbuch über die anlage von eisenbahnen; ihre kosten, unterhaltung, und ihren ertrag über die anfertigung und prüfung von guss- und stabeiserner schienen, und die einrichtung der dampf- und anderen eisenbahnwagen. Augsburg, 1837. 544 pp.
- Hassler, Charles W. Railroad rings and their relation to the railroad question in the country. N. Y., 1876. 29 pp.
- Haymond, Creed. The Central Pacific railroad company; its relations to the government. It has performed every obligation. Argument before select committee of the United States senate. San Francisco, 1888. 256 pp.
 Rejoinder to report of Pacific railway commission.
- Hazard, Rowland Gibson. The Credit Mobilier of America. Providence, 1881. 42 pp.
- Hazard's Register of Pennsylvania. Philadelphia, 1828-36. Weekly. Editor, Samuel Hazard.
- Hazard's United States Commercial and Statistical Register. Philadelphia, 1839-42. Weekly. Editor, Samuel Hazard.
- Hill, Benjamin T. The beginnings of the Boston and Worcester

railroad. Worcester Society of Antiquity, Proceedings, 1901.
Worcester, 1902: 527-76.

Hillyer's American Railroad Magazine. N. Y., 1859-61 + ?. Monthly.
Hinsdale, Elizur Bruce. History of the Long Island railroad com-
pany. N. Y., 1898. 34 pp.

Hittell, Theodore Henry. History of California. San Francisco, 1897: IV.

Hollander, Jacob Harry. The Cincinnati Southern railway: a study
in municipal activity. Baltimore, 1894. 96 pp.

Johns Hopkins University, Studies in Historical and Political
Science, XII, 1-96.

— The financial history of Baltimore. Baltimore, 1899. 397 pp.

Johns Hopkins University, Studies in Historical and Political
Science, extra volume XX.

Hough, Emerson. The settlement of the West; a study in transporta-
tion. Century Magazine. N. Y., 1902: LXIII, 355-69.

Howland, Edward. A railroad study. Harper's Magazine. N. Y.,
1877: LV, 614-22.

Hughes, Sarah Forbes (editor). Letters and recollections of John
Murray Forbes. Boston, 1899-1900. 2 v.

Hulbert, Archer Butler. Millions for pioneer canals and railways.
Chautauquan. Springfield (O.), 1904: XXXIX, 51-8.

Hunt. See Merchants' Magazine and Commercial Review.

Huntingdon, Collis Potter. Address before the committee on Pacific
railroads of the house of representatives. n. p. [1896], 12 pp.

— Relations of the Pacific R.R. companies to the U. S. government
growing out of bonds advanced in aid of construction. n. p.,
n. d. 22 pp.

Hutchins, Stephen C. Railroads and transportation. Chadbourne,
The public service of New York. Boston, 1882: I, 475-562.

Illinois Central Railroad Company. 1851-1901, Illinois Central rail-
road company, fiftieth anniversary. Chicago, 1901. Unpaged.

Jackson, William. A lecture on railroads. Boston (2 ed.), 1829. 36 pp.

Jeans, James Stephens. Development of railroads at home and abroad.
Fortnightly Review. London, 1894: LXI, 365-76.

Jervis, John Bloomfield. A memoir of American engineering. Amer-
ican Society of Civil Engineers, Transactions. N. Y., 1876: VI,
39-67.

— Railway property; a treatise on the construction and manage-
ment of railways. N. Y., 1861. 341 pp.

- Johnson, Edwin Ferry. Railroad to the Pacific. Northern route. Its general character, relative merits, etc. N. Y. (2 ed.), 1854. 176 pp.
From American Railroad Journal. N. Y., 1853: XXVI, 705, et seq.
- Johnson, Emory Richard. American railway transportation. N. Y., 1903. 434 pp.
- Johnson, Samuel W. Rural economy. New Brunswick (N. J.), 1806. 250 pp.
"Iron roads, or railways and inclined planes," 232-5.
- Johnston, John Warfield. Railway land-grants. North American Review. N. Y., 1885: CXL, 280-9.
- Joy, James F. Railroad history of Michigan. Michigan Pioneer and Historical Society, Pioneer Collections. Lansing, 1894: XXII, 292-304.
- Julian, George Washington. Our land-grant railways in congress. International Review. N. Y., 1883: XIV, 198-212.
— Railway influence in the land office. North American Review. N. Y., 1883: CXXXVI, 237-56.
- Kane, John K. William Strickland, [an obituary notice]. American Philosophical Society, Proceedings. Philadelphia, 1854: VI, 28-52.
- Kayler, R. S. Ohio railroads. Ohio Archeological and Historical Society, Quarterly. Columbus, 1900: IX, 189-92.
- Keefer, Horace A. The development of transportation systems in the United States; financial policies and the results to which they are leading. Association of Engineering Societies, Journal. N. Y., 1892: XI, 332-43.
- Keith, Hannah Emily. An historical sketch of internal improvements in Michigan. 1836-1846. Ann Arbor, 1900. 48 pp.
Michigan Political Science Association, Publications, IV, 1-48.
- Kennedy, J. H. The American railroad; its inception, evolution and results. Magazine of Western History. Cleveland, 1888-90: VII, 506- XI, 362, passim.
- Kentucky, Special report to the senate on the amount of indebtedness of each county, district, city and town of Kentucky. By D. Howard Smith, auditor. Senate Journal, adjourned session, 1870-1: 314-8.

- King, John. John Plumbe, originator of the Pacific railroad. *Annals of Iowa*. Des Moines, 1904 (3 ser.): VI, 289-96.
- Lamb, Martha Joan. Glimpses of the railroad in history. *Magazine of American History*. N. Y., 1891: XXV, 429-47.
- Lansing, Gerrit L. Relations between the Central Pacific railroad company and the United States. Summary of facts. San Francisco. 1889. 70 pp.
- Rejoinder to report of Pacific railway commission.
- Lardner, Dionysius. Railway economy; a treatise on the new art of transport. London, 1850. 528 pp.
- Railways at home and abroad. Anon. *Edinburgh Review*. Edinburgh, 1846: LXXXIV, 479-531.
- The steam engine familiarly explained and illustrated. London (5 ed.), 1836. 379 pp.
- Larned, Josephus Nelson (compiler). The literature of American history. Boston, 1902. 588 pp.
- Larrabee, William. The railroad question; a historical and practical treatise on railroads, and remedies for their abuses. Chicago, 1893. 488 pp.
- Larson, Laurence Marcellus. A financial and administrative history of Milwaukee. Madison, 1908. 182 pp.
- University of Wisconsin, Bulletin, Economics and Political Science series, IV, 137-318.
- Latrobe, John Hazlehurst Bonival. The Baltimore and Ohio railroad. Personal recollections. Baltimore, 1868. 26 pp.
- Lavoigne, Edouard, and F. Pontzen. Les chemins de fer en Amérique. Paris, 1880. 2 v.
- Lawson, W. R. American securities in Europe, 1845-1905. *Bankers' Magazine*. N. Y., 1905: LXXI, 498-508.
- Lea, Albert Miller. A Pacific railway. Knoxville, 1858. 16 pp.
- Learned, Edward. Memorial on the subject of the construction of a railroad to the Pacific ocean. 1860. 4 pp.
- U. S. document; serial 1065.
- Leland, Cyrus Powers. History of the Lake Shore and Michigan Southern railway. Association of Engineering Societies, Journal. N. Y., 1887: VI, 340-51.
- From annual reports, 1877-9.
- The Ohio railroad; that famous structure built on stilts. *Magazine of Western History*. Cleveland, 1891: XIII, 742-56.

- Same. Western Reserve and Northern Ohio Historical Society, Tracts. Cleveland, 1892: no. LXXXI: 263-84.
- The rise and fall of a railroad company, 1837-42. Association of Engineering Societies, Journal. N. Y., 1881: I, 129-35.
- Lewis, Lawrence. A feat in railroad building. *World's Work*. N. Y., 1905: XI, 6859-70.
- Denver, Northwestern, and Pacific.
- Leyen, Alfred Friedrich von der. Die finanz und verkehrspolitik der nordamerikanischen eisenbahnen. Ein beitrage zur beurtheilung der neuesten eisenbahnkrise. *Archiv für Eisenbahnwesen*. Berlin, 1894: XVII, 1-70.
- Same. Extract, ("North American railway securities in Europe"). Translation by Eugene Germain. United States consular reports, 1894: XLV, 192-6.
- U. S. document; serial 3260.
- Die nordamerikanische eisenbahnen in ihren wirtschaftlichen und politischen beziehungen. Leipzig, 1885. 402 pp.
- Lindsay, Robert Burns. To the people of Alabama. Statement of facts which influenced Gov. Robert B. Lindsay in his action in regard to the bonds of the Alabama and Chattanooga railroad company. Montgomery, 1871. 16 pp.
- Special message of Gov. Robert B. Lindsay in relation to the Alabama and Chattanooga railroad. Montgomery, 1872. 14 pp.
- Livingston, John. The Erie railway; its history and management from 1832 to 1875. N. Y., 1875. 92 + 36 pp.
- Lord, Eleazar. A historical review of the New York and Erie railroad. N. Y., 1855. 223 pp.
- Loring, Lewis P. Early railroads in Boston. *Bostonian*. Boston, 1894: I, 299-309.
- Loughborough, John. The Pacific telegraph and railway. St. Louis, 1849. 80 pp.
- Louisiana. Report of the joint committee appointed to investigate the affairs of the railroads in which the state is a stockholder. Baton Rouge, 1860. 30 pp.
- Leutscher, George D. The struggle between Atlantic seaports for trade from the interior.
- In preparation.

- Lyles, James H. (compiler). Official railway manual of the railroads of North America. N. Y., 1869?-71 + ?.
- Maclaren, Charles. Railways compared with canals and common roads, and their uses and advantages explained: being the substance of a series of popular articles published in the Scotsman, in December, 1824, and now republished with additions and corrections. London, 1825. 36 pp.
- Same. Pamphleteer. London, 1826: XXVI, no. LI, 57-92.
- McClure, Alexander Kelley. Old-time notes of Pennsylvania. Philadelphia, 1905. 2 v.
Railroads, I, passim.
- McCrea, Roswell Cheney. Taxation of transportation companies. Report of the industrial commission. Washington, 1901: IX, 1005-91.
U. S. document; serial 4339.
- McGregor, John. The progress of America from the discovery by Columbus to the year 1846. London, 1847. 2 v.
"Canals and railroads of the United States," II, 697-747.
- Mackay, Alexander. The western world; or travels in the United States in 1846-47. London, 1849. 2 v.
"Railway system of the United States," II, 223-57.
- McMaster, John Bach. A history of the people of the United States. N. Y., 1883-1906. 6 v.
- McVey, Frank Le Rond. State aid to New York railways. Social Economist. N. Y., 1894: VII, 101-7.
- Malzieux, M. Travaux publiques des États-Unis d'Amérique en 1870. Paris, 1873. 572 pp. Atlas.
- The Manual of Statistics; stock exchange handbook. N. Y., 1879. Annual.
- Martin, Joseph G. (compiler). Martin's Boston stock market, eighty-eight years, from January, 1789, to January, 1886, comprising the annual fluctuations of all public stocks and investment securities . . . with the semi-annual dividends paid by each. Boston, 1886. 152 pp.
- Martin, William Elejius. Internal improvements in Alabama. Baltimore, 1902. 87 pp.
Johns Hopkins University, Studies in Historical and Political Science, XX, 119-205.
Railroads 64 ff.

- Mason, Frank H. American railway securities in Germany. United States consular reports, 1894: XLVI, 383-6.
U. S. document; serial 3330.
- Massachusetts. Report and bill respecting the Boston and Lowell railroad corporation. Boston, 1837. 28 pp.
- Report of the board of commissioners for the survey of one or more routes for a railway from Boston to Albany. Boston, 1828. 56 pp.
- Report of the board of directors of internal improvements on the practicability and expediency of a railroad from Boston to the Hudson river and from Boston to Providence. Boston, 1829. 76 pp.
- Report of the board of commissioners of internal improvements in relation to the examinations for sundry routes for a railway from Boston to Providence; with a memoir of the survey. Boston, 1828. 72 pp.
- Report of the commissioners on the routes of canals from Boston to Connecticut and Hudson rivers. Boston, 1826. 185+62 pp.
- Report of select committee of the house of representatives on the practicability and expediency of constructing a railway from Boston to the Hudson river at or near Albany. Boston, 1827. 38 pp.
- Maury, Matthew Fontaine. Steam navigation to China. Letter to chairman T. B. King, of the house committee on naval affairs, January 10, 1848. Trezevant, Circular to the citizens of the United States. n. p., n. d. 12-24.
The geographical advantage of Memphis as a terminus of the proposed Pacific railway.
- Mayes, Edward. Origin of the Pacific railroads, and especially the Southern Pacific. Mississippi Historical Society, Publications. Oxford, 1902: VI, 307-37.
- Meade, Edward Sherwood. Trust finance. N. Y., 1903. 387 pp.
- The work of the promoter. American Academy of Political and Social Science, Annals. Philadelphia, 1902: XX, 559-70.
- Meany, John P. A study in railway statistics. Anon. Introduction to Poor's manual of the railroads of the United States. N. Y., 1900: xvii-cvi.
- Medbery, J. K. Our Pacific railroads. Atlantic Monthly. Boston, 1867: XX, 704-15.

- Medbury, W. K. The New Jersey monopolies. North American Review. Boston, 1867: CIV, 428-76.
- Merchants' Magazine and Commercial Review. N. Y., 1839-70. Monthly.
- Editor, Freeman Hunt. "Hunt's" in title-page, 1850-60, volumes 23 to 43.
- Meyer, Balthasar Henry. Early railroad legislation in Wisconsin, 1853-74. Wisconsin Academy of Sciences, Arts, and Letters, Transactions. Madison, 1898: XII, 337-88.
- A history of early railroad legislation in Wisconsin. State Historical Society of Wisconsin, Collections. Madison, 1898: XIV, 206-300.
- Railroad legislation under foreign and domestic laws. Report of the industrial commission. Washington, 1901: IX, 897-1004. U. S. document; serial 4339.
- Railway charters. American Economic Association, Publications. N. Y., 1900: (3 ser.) I, 231-44.
- Same. Railroad Gazette. N. Y., 1900: XXXII, 9-10.
- Railway legislation in the United States. N. Y., 1903. 329 pp.
- Meyer, Hugo Richard. The settlement with the Pacific railways. Quarterly Journal of Economics. Boston, 1899: XIII, 427-44.
- Million, John Wilson. State aid to railroads in Missouri. Journal of Political Economy. Chicago, 1895: III, 73-97.
- State aid to railways in Missouri. Chicago, 1896. 264 pp.
- Mills, Robert. Inland navigation. Plan for a great canal between Charleston and Columbia and for connecting our waters with those of the western country. Columbia (S. C.), 1821. 93 pp.
- Memorial submitting a new plan of roadway. 1846. 27 pp. U. S. document; serial 485.
- A treatise on inland navigation, accompanied by a map. Baltimore, 1820. 103 pp.
- Minnesota. Biennial report of the state auditor, 1905-6. Minneapolis, 1906.
- Bonds of local governments in aid of railroads, 1869-1905, bonds of state, 1858-9: 201-7.
- Mitchell, Samuel Augustus. Mitchell's compendium of the internal improvements of the United States; comprising general notices of all the most important canals and railroads throughout the

- several states and territories of the union. Philadelphia, 1835. 84 pp.
- Moody's manual of railroad and corporation securities. N. Y., 1900-, Annual.
- Editor, John Moody.
- Moore, Joseph H. How members of congress are bribed. An open letter. A protest and a petition from a citizen of California to the United States congress. San Francisco, n. d. 22 pp.
- Morris, Charles N. Internal improvements in Ohio, 1825-1850. American Historical Association, Papers. N. Y., 1889: III, 351-80.
- Mott, Edward Harold. Between the ocean and the lakes. The story of Erie. N. Y., 1901. 511 pp.
- Munsell, Joel. The origin, progress and vicissitudes of the Mohawk and Hudson railroad, and the first excursion on it. Albany, 1875. 20 pp.
- Nelson, E. C. Presidential influence on the policy of internal improvements. Iowa Journal of History and Politics. Iowa City, 1906: IV, 1-69.
- Nelson, S. A. (compiler). The bond buyers' dictionary. N. Y., 1907. 174 pp.
- New Jersey. Report of commissioners appointed to investigate charges made against the directors of the Delaware and Raritan canal and Camden and Amboy railroad and transportation companies. Trenton, 1850. 79 + 102 + 187 pp.
- New York. Report of the committee appointed to investigate the affairs of the New York and Erie railroad company [with testimony]. Albany, 1842. 82 + 671 p.
- Report of the committee on railroads on the communication from the president of the New York and Erie railroad company, asking an investigation of the affairs of the company. Albany, 1841. 160 pp.
- Report of the committee on rail-roads on the petition of the president, directors and company of the New York and Erie rail-road company, and of sundry citizens. Albany, 1838. 35 pp.
- Report of the select committee to which was referred the petition for state-aid to the Albany and Susquehanna railroad company. Albany, 1863. 24 pp.

- Testimony taken before the joint committee of the senate and assembly to investigate and examine into the business of life insurance companies doing business in the state of New York, 1905. Albany, 1906. 7 v.
- Niles' Weekly Register, and Niles' National Register. Baltimore, 1811-48.
- Editors: Hezekiah Niles, W. A. Niles, Jeremiah Hughes.
- North, Roger. The lives of the Right Hon. Francis North, Baron Guilford, lord keeper of the great seal, . . . the Hon. Sir Dudley North, . . . and the Hon. Dr. John North. London (new ed.), 1826. 3 v.
- First edition, 1740-2, in two volumes.
- Oberholtzer, Ellis Paxson. Jay Cooke after the Civil war. Century Magazine. N. Y., 1907: LXXIII, 779-93, 855-69.
- Jay Cooke, financier of the Civil war. Philadelphia, 1907. 2 v. Northern Pacific.
- Ohio. Special report of the auditor of state on the condition of the several railroad companies to which the credit of the state has been loaned. By John Brough. Columbus, 1843. 99 pp.
- Pangborn, Joseph Gladding. The world's railway. N. Y. [1896]. 175 pp.
- Development of steam engines, rails, and equipment.
- Pennsylvania. Communication from the auditor-general with a statement of the amount of bonds, scrip and other certificates of indebtedness issued by the several counties, incorporated cities, etc. By E. Banks. Senate Journal, 1852: II, 327-8.
- Pennsylvania Company. Corporate history of the Pittsburg, Fort Wayne, and Chicago railway company. Pittsburgh, 1875. 485 pp.
- Pennsylvania Railroad Company. Fiftieth anniversary of the incorporation of the Pennsylvania railroad company, held in Philadelphia, April 13th, 1896. [Philadelphia], 1896. 79 pp.
- Perham, Josiah. People's Pacific railroad company. Charter, organization, address of the president, with the by-laws of the board of commissioners. Boston, 1860. 24 pp.
- Peters, E. T. The policy of railroad land grants. [Washington?] 1870. 14 pp.
- Peto, Samuel Morton. The resources and prospects of America ascer-

- tained during a visit to the States in the autumn of 1865. London, 1866. 428 pp.
- Railroads, 265-307.
- Peyton, John Lewis. Suggestions on railroad communication with the Pacific, and the trade of Chicago and the Indian islands. Chicago, 1853. 32 pp.
- Phelan, James. History of Tennessee. Boston, 1888. 478 pp.
- Phillips, Ulrich Bonnell. An American state-owned railroad. Yale Review. New Haven, 1906: XV, 259-83.
- The Western and Atlantic.
- A history of transportation in the eastern cotton belt to 1860. N. Y., 1908. 405 pp.
- Early railroads in Alabama. Gulf States Historical Magazine. Montgomery, 1903: I, 345-7.
- Pierce, Edward Lillie. A treatise on the law of railroads. Boston, 1881. 575 pp.
- Pike, Albert. National plan of an Atlantic and Pacific railroad, and remarks of Albert Pike made thereon, at Memphis, November, 1849. Little Rock [1849]. 16 pp.
- Plumbe, John. Memorial against Mr. Asa Whitney's railroad scheme. n. p. [1851]. 48 pp.
- Memorial to the senate and house of representatives of the United States. [Washington, 1850.] 8 pp.
- Poe, Orlando Metcalfe. History and construction of transcontinental railways in the United States. Report of the secretary of war, 1883: I, 253-317.
- U. S. document; serial 2182.
- Poor, Henry Varnum. Congressional land grants for railroads. Poor's manual of the railroads of the United States. 1868-9: 66, to 1879: 992, passim.
- History of the railroads and canals of the United States. N. Y., 1860. 612 pp.
- The Pacific railroads. North American Review. N. Y., 1879: CXXVIII, 664-80.
- Sketch of the rise and progress of the internal improvements and of the internal commerce of the United States. Poor's manual of the railroads of the United States, 1881. N. Y., 1882: i-xxxix.
- Sketch of the rise, progress, cost, earnings, etc., of the railroads

of the United States. Poor's manual of the railroads of the United States, 1868-9: 9 to 1870-1: xlv, *passim*.

✓ Poor's manual of the railroads of the United States. N. Y., 1868-. Annual.

Editors: Henry Varnum Poor, Henry William Poor, John P. Meany. Porter, Robert Percival. State debts and repudiation. International Review. N. Y., 1880: IX, 556-92.

Poussin, Guillaume Tell. Amerikanische eisenbahnen; geschichtliches ihrer ausführung; baukosten, ertrag, verwaltung, und gesetzgebung derselben. Regensburg, 1837. 402 pp.

— Chemins de fer américains: historique de leur construction, prix de revint et de produit; mode d'administration adopté; résumé de la législation, qui les régit. Paris, 1836. 271 pp.

— Travaux d'améliorations intérieures projets ou exécutés par le gouvernement général des États d'Amérique de 1824 à 1831. Paris, 1834. 364 pp.

Powell, Fred Wilbur. Two experiments in public ownership of steam railroads. Quarterly Journal of Economics. Boston, 1908: XXIII, 137-50.

Prendergast, F. E. Transcontinental railways. Harper's Magazine. N. Y., 1883: LXVII, 936-44.

Purdue University. Lectures delivered before the students in railway engineering and allied subjects. [James H. Smart, editor.] Lafayette, 1898. 347 pp.

✓ Railroad Gazette. Chicago and N. Y., 1856-1908. Weekly.

Editors: S. Wright Dunning, Matthias Nace Forney, Henry Goslee Prout, William Henry Boardman.

Railroad Record. Cincinnati, 1853-63 + ?. Weekly.

Editors: E. D. Mansfield, W. Wrightman, J. A. James.

The Railway Age. Chicago, 1876-1908. Weekly.

Editors: E. H. Talbott, H. R. Talbott, Harry P. Robinson, Hugh M. Wilson.

The Railway Chronicle. Boston, 1873 + ?. Weekly.

Editor, J. B. Whitney.

The Railway Monitor. N. Y., 1873-5. Weekly.

The Railway Reporter. Pittsburgh, 1880-4 + ?. Weekly.

Railway Review. Chicago, 1868-98. Weekly.

Editor, Willard A. Smith.

Begun as "Chicago Railway Review; changed 1898 to "Railway and Engineering Review."

The Railway Times. Boston, 1849-67. Weekly.

Editor, John A. Haven.

Railway World. Philadelphia, 1856-. Weekly.

Editors: Thomas Sargent Fernon, John Luther Ringwalt, J. Peter Lesley, J. D. Slade, Harry Turner Newcomb, Frank Julian Warne, Frank D. McLain, Edward G. Ward.

Begun as "Pennsylvania Railroad and Mining Register"; changed to "U. S. Railroad and Mining Register" in 1856, and to present title in 1875.

Redfield, Isaac Fletcher. The law of railways. Edited by J. and K. Kinney. Boston (6 ed.), 1888. 2 v.

Redfield, William C. Sketch of the geographical rout [sic] of a great railway by which it is proposed to connect the canals and navigable waters of New York, Pennsylvania, Ohio, Indiana, Illinois, Michigan, Missouri, and the adjacent states and territories, opening thereby a free communication at all seasons of the year between the Atlantic states and the great valley of the Mississippi. Anon. N. Y. (8 ed.), 1830. 48 pp.

Reid, William A. A treatise on the law pertaining to corporate finance, including the financial operations and arrangements of public and private corporations. Albany, 1896. 2 v.

Reizenstein, Milton. The economic history of the Baltimore and Ohio railroad, 1827-1853. Baltimore, 1897. 89 pp.

Johns Hopkins University, Studies in Historical and Political Science, XV, 275-363.

Ringwalt, John Luther. Development of transportation systems in the United States. Philadelphia, 1888. 398 pp.

Roberts, Solomon W. Reminiscences of the first railroad over the Alleghany mountain. Philadelphia, 1879.

Bound with William Hasell Wilson's Notes on the internal improvements of Pennsylvania, 61-83.

From Pennsylvania Magazine of History and Biography. Philadelphia, 1878: II, 370-94.

Robinson, John R. The Octopus. A history of the construction, conspiracies, extortions, robberies, and villainous acts of the Central Pacific, Southern Pacific of Kentucky, Union

- Pacific, and other subsidized railroads. San Francisco, 1894. 116 pp.
- Roebling, John Augustus. The great American railroad from Philadelphia to St. Louis. N. Y., 1847. 16 pp.
- Rollins, Montgomery. Money and investments. Boston, 1907. 436 pp.
- Sanborn, John Bell. Congressional grants of land in aid of railways. Madison, 1899. 130 pp.
- University of Wisconsin, Bulletin, Economics, Political Science, and History series, II, 263-392.
- Railroad land grants. Wisconsin Academy of Sciences, Arts, and Letters, Transactions. Madison, 1899: XII, 306-16.
- Sargent, J. H. History of railroads between Cleveland and Chicago. Association of Engineering Societies, Journal. N. Y., 1887: VI, 355-63.
- Saunders, William. Through the light continent; or the United States in 1877-8. London (2 ed.), 1879. 415 pp.
- “Railways,” 272-85.
- Sayous, André E. Une chapitre de l'histoire des chemins de fer américains; Henry C. Carey et la Camden and Amboy railroad and Delaware and Raritan canal Co. *Revue d'Économie Politique*. Paris, 1904: XVIII, 751-63.
- Schafer, Joseph. The Pacific slope and Alaska. Philadelphia, 1904. 442 pp.
- “Beginnings of the railroad age.” 349-66.
- ✓ Scott, William Amasa. The repudiation of state debts. N. Y., 1893. 325 pp.
- Sedgwick, Arthur George. Railroad improvements. Anon. *Nation*. N. Y., 1898: LXVII, 25-6.
- Railroad stock and stockholders. Anon. *Atlantic Monthly*. Boston, 1873: XXXII, 764-8.
- Report of the Erie investigating committee. Anon. *Atlantic Monthly*. Boston, 1873: XXXII, 124-7.
- Sedgwick, Theodore. Brief remarks on the rail roads proposed in Massachusetts. By “Berkshire.” Stockbridge (Mass.), 1828. 23 pp.
- Seligman, Isaac Newton. Underwriting the sale of corporate securities. *Journal of Accountancy*. N. Y., 1906: II, 321-30.

- Sener, Mandel. Early days on the pioneer steam railways. Railway World. Philadelphia, 1906: L, 27-9.
- Sering, Max. Die landpolitik der Vereinigten Staaten von Nordamerika. Schmoller, Jahrbuch für gesetzgebung, verwaltung und volkswirtschaft im deutschen reich. Leipzig, 1884: II, 95-151.
- Simonen, Louis. Le monde américain: souvenirs de mes voyages aux États-Unis. Paris, 1876. 395 pp.
- "Chemins de fer," 343-91.
- Simonten, T. C. A treatise of the law of municipal bonds. N. Y., 1896. 566 pp.
- Sinclair, Angus. American and foreign locomotives. New England Railroad Club, Proceedings. Boston, January 1902: 5-56.
- Development of the locomotive engine, N. Y., 1907. 605 pp.
- Development of transportation in the United States. Yearbook of the department of agriculture. Washington, 1900: 643-63.
- U. S. document; serial 3996.
- Sipes, William B. The Pennsylvania railroad, its origin, construction, condition, and connections. Philadelphia, 1875. 281 pp.
- Smalley, Eugene V. History of the Northern Pacific railroad. N. Y., 1883. 437 pp.
- That part of the book dealing with the Villard administration was dictated by Henry Villard.
- Smith, George Washington. Facts and arguments in favor of adopting railways in preference to canals in the state of Pennsylvania. To which are added a few remarks on the subject of internal improvements. Anon. Philadelphia (3 ed.), 1825. 66 pp.
- Internal improvement. Railroads, canals, bridges, etc. Anon. [Philadelphia, 1825.] 28 pp.
- Smith, Howard Irving. Smith's financial dictionary. N. Y., 1903. 543 pp.
- Smith, Milton H. The Louisville and Nashville railroad company. Fiftieth anniversary of the service of James Geddes with the Louisville and Nashville railroad company. [Louisville, 1901], 12-41.
- Smith, William Prescott. The book of the great railway celebrations of 1857, embracing a full account of the opening of the Ohio and Mississippi, and the Marietta and Cincinnati railroads, and the Northwestern Virginia branch of the B. & O. R.R., with the histories and descriptions of the same. N. Y., 1858. 264 + 178 pp.

- A history and description of the B. & O. R.R. Anon. Baltimore, 1853. 200 pp.
- Smythe, Roland Mulville (compiler). Obsolete American securities and corporations, illustrated with photographs of important repudiated bonds. N. Y., 1904. 979 pp.
- South Carolina Tax-payers' Convention. Proceedings. Charleston, 1871. 127 pp.
- Sparks, Edwin Erle. The expansion of the American people, social and political. Chicago, 1900. 461 pp.
- Transportation, 238-89, 366-75.
- Speare, Charles F. Selling American bonds in Europe. American Academy of Political and Social Science, Annals. Philadelphia, 1907: XXX, 269-83.
- Stanford, Leland. Pacific railroads. Statement made before the senate select committee on Pacific railroads. March 17, 1888. n. p., n. d. 28 pp.
- Stanton, J. D. Statement of the building of the Alabama and Chattanooga railroad. Chattanooga, 1878. 24 pp.
- Steele, J. Dalton. Early history of railways and the origin of gauge. American Society of Civil Engineers, Transactions. N. Y., 1872: II, 53-61.
- Stennett, W. H. Yesterday and to-day. A history of the Chicago and North Western railway system. Anon. Chicago, 1905. 124 pp.
- Sterne, Simon. History and political economy of railways. Lalor, Cyclopædia of political science, political economy, and of the political history of the United States. Chicago, 1884: III, 493-512.
- The railway problem. National Quarterly Review. N. Y., 1880: XL, 395-428.
- The railway problem in the state of New York. Opening statement before the assembly special [Hepburn] committee on railroads. New York, Proceedings of the special committee on railroads. N. Y., 1879: I, 98-118.
- Recent railroad failures and their lessons. Forum. N. Y., 1894: XVII, 19-38.
- Stevens, Hazard. The life of Isaac Ingalls Stevens by his son. Boston, 1900. 2 v.
- Pacific railroad survey, I, 280-432.
- Stevens, John. Documents tending to show the superior advantages

- of railways and steam carriages over canal navigation. N. Y., 1812. 43 pp.
- Same. With preface by Charles King. N. Y., 1852. 46 pp.
- Stevenson, David. Sketch of the civil engineering of North America. London, 1838. 320 pp.
- Railroads, 237-77.
- Stevenson, George. Underwriting. American Academy of Political and Social Science, Annals. Philadelphia, 1905: XXV, 61-6.
- Stevenson, Robert (editor). Essays on rail roads, presented to the Highland society. Highland Society of Scotland, Prize-Essays and Transactions. Edinburgh, 1824: VI, 1-146.
- Stimson, A. L. History of the express companies and the origin of American railroads. N. Y., 1859. 287 pp.
- Stockton, Robert Field. Answer in behalf of the joint board of the D. & R. canal and C. & A. R.R. companies to a committee of the senate of New Jersey, in relation to surrendering the works of the companies to the state. Trenton, 1854. 22 pp.
- Appeal to the people of New Jersey in relation to the existing contracts between the state and the united Delaware and Raritan canal and Camden and Amboy railroad companies. Princeton, 1849. 29 pp.
- Stow, F. H. (compiler). Capitalist's guide and railway annual; containing all the railroads completed and in progress in the United States. N. Y., 1859. 537 pp.
- Strickland, William. Reports on canals, roads, and other subjects, made to the "Pennsylvania Society for the Promotion of Internal Improvements." Philadelphia, 1826. 51 pp.
- Sullivan, Mark. Repudiated state bonds. Recovery from North Carolina by South Dakota. Bankers' Magazine. N. Y., 1904: LXVIII, 599-603.
- Sumner, Charles A. (and others). A memorial against refunding the claim of the United States upon the Central Pacific railroad committee for \$72,000,000. n. p., 1894. 13 pp.
- Sydenstricker, Edgar. A financial history of the Virginias, 1607-1907. In preparation.
- Talbott, E. H. Railway land grants in the United States; their history, economy, and influence upon the development and prosperity of the country. Chicago, 1880. 66 pp.

- Tanner, Henry S. The American traveler; a guide through the United States, containing brief notices of the . . . canals, and railroads, &c. . . . Philadelphia, 1834. 144 pp.
- Various subsequent editions.
- A brief description of the canals and railroads of the United States; comprehending notices of all the most important works of internal improvement throughout the several states. Philadelphia, 1834. 63 pp.
- A description of the canals and railroads of the United States; comprehending notices of all the works of internal improvements throughout the United States. N. Y., 1840. 273 pp.
- Memoir on the recent surveys, observations, and internal improvements in the United States. Philadelphia, 1829. 108 pp.
- Tathorn, George H. An exposition of the character and management of the New Jersey joint monopolies, the Camden and Amboy railroad and transportation company, the Delaware and Raritan canal company, and their appendages. Philadelphia, 1852. 32 pp.
- Taylor, B. B. The policy that built up the West. Overland Monthly. San Francisco, 1875: XIV, 201-7.
- A defence of subsidies.
- Tennessee. Report on the condition of the railroads in Tennessee, 1857. By R. G. Payne. Appendix [Legislative documents], 1857-8: 35-70.
- The state debt. Report of the committee appointed to investigate it. Nashville, 1879. 209 pp.
- Thompson, Richard Wigginton. Railroad to the Pacific ocean. National Intelligencer. Washington, September 30, October 25, and November 18, 1848: XLIX.
- Thurston, Robert Henry. A history of the growth of the steam engine. N. Y. (2 ed.), 1884. 481 pp.
- Tingley, C. E. Bond subsidies to railroads in Nebraska. Quarterly Journal of Economics. Boston, 1892: VI, 346-52.
- Train, George Francis. My life in many states and in foreign lands. N. Y., 1902. 348 pp.
- Atlantic and Great Western, 237-48; Union Pacific, 283-92.
- Tredgold, Thomas. A practical treatise on railroads and carriages, showing their strength, proportions, expense, and annual produce,

- and the conditions which render them effective, economical, and desirable; with the theory, effect, and expense of steam carriages, stationary engines, and gas machines. N. Y., 1825. 184 pp.
- Tremenheere, Hugh Seymour. Notes on public subjects, made during a tour in the United States and in Canada. London, 1852. 320 pp.
- "Railways," 60-104.
- Trent, William Peterfield. [The Louisville, Cincinnati, and Charleston railroad project.] Powell, Historic towns of the Southern states. N. Y., 1900: xxiv-xxviii.
- Trotter, Alexander. Observations on the financial position and credit of such of the states of the North American union as have contracted public debts. London, 1839. 445 pp.
- United States. Attorney General. Annual report, 1894-1900. Settlement of the Pacific railroad debt.
- Union Pacific railroad company, 47 pp. Records in Pacific railway foreclosure cases, 28+57 pp. Pacific railroads, 90 pp. 1897. Serial 3559.
- Auditor of Railroad Accounts. Annual report, 1878-80. In annual report of the secretary of the interior.
- Census Office. Report on transportation business in the United States at the eleventh census; 1890. Part 1. Transportation by land. By Henry Carter Adams. 1895. 867 pp. Serial 3018.
- Report on valuation, taxation, and public indebtedness in the United States. Tenth census, 1880. By Robert Percival Porter. 1884: VII. 909 pp. Serial 2135.
- Report on wealth, debt, and taxation at the eleventh census, 1890. Part 1. Public debt. By John Kendrick Upton. 1892. 890 pp. Serial 3009.
- Statistical report of the railroads in the United States. By Armin E. Shuman. Report on the agencies of transportation in the United States. Tenth census, 1880. 1883: IV, 1-639. Serial 2132.
- Commissioner of the General Land Office. Annual report, 1881-. In annual report of the secretary of the interior.
- Lands granted railroads. 1882. 45 pp. Serial 2036.
- Statement showing land grants made by congress to aid in the construction of railroads, wagon roads, canals, and internal improvements. 1908. 28 pp.

- Commissioner of Railroads. Annual report, 1881-1903. In annual report of the secretary of the interior.
- — Information as to provision made by Pacific railroads to pay bonds. 1894. 5 pp. Serial 3226.
- Commission to Examine the Pacific Railroad. Report on the Pacific railroad. 1869. 52 pp.
Addressed to the secretary of the interior, but it does not appear in the annual report for 1869, or with it, though reference to it is made in that report.
- Government Directors of the Union Pacific Railway. Annual reports, 1864-85. 1886. 252 pp. Serial 2336.
- — Annual report, 1886-92.
- House Committee on the Judiciary. The disposal of the subsidies granted certain railroad companies. 1876. 175 pp. Serial 1706.
- — Receivership of the Northern Pacific railroad company. 1894. 22 pp. Serial 3271.
- House Committee on Pacific Railroads. Amending the various Pacific railroad acts. 1878. 10 pp. Serial 1824.
- — Pacific railroads. 1896. 13 + 30 + 8 pp. Serial 3462.
- — Railroad and telegraph line from the Missouri river to the Pacific ocean. 1886. 11 pp. Serial 2441.
- — Railroad and telegraph line from the Missouri river to the Pacific ocean. 1894. 12 + 95 pp. Serial 3272.
- House Committee on Public Lands. Forfeiture of certain railroad lands. 1890. 9 pp. Serial 2810.
- House Committee on Roads and Canals. Railroad to Oregon. 1845. 5 pp. Serial 468.
First report on Whitney's plan.
- — Railroad to the Pacific ocean. 1846. 48 pp. Serial 491.
Refers to Wilkes' plan.
- — Whitney's railroad to the Pacific. 1850. 117 pp. Serial 583.
Contains Whitney's memoirs of 1845, 1846, and 1848.
- — Whitney's railroad to the Pacific. 1852. 10 pp. Serial 656.
- House Select Committee on Credit Mobilier (No. 1). Credit Mobilier and Dubuque and Sioux City railroad. 1873. 53 pp. Serial 1577.
- House Select Committee on the Credit Mobilier, etc. (No. 2).

- Affairs of the Union Pacific railroad company. 1873. 770 + 17 pp. Serial 1577.
- Wilson committee report.
- — Central Pacific railroad company. 1873. 4 pp. Serial 1576.
- House Select Committee to Investigate the Alleged Credit Mobilier Bribery. Credit Mobilier investigation. 1873. 523 pp. Serial 1577.
- Poland committee report.
- House Select Committee on the Pacific Railroad. Pacific railroad and telegraph. 1856. 84 pp. Serial 870.
- — Pacific railroad. 1860. 27 + 9 + 29 pp. Serial 1069.
- House Select Committee on Sundry Memorials. Relief of the states. 1843. 574 pp. Serial 429.
- House Select Committee upon the Union Pacific Railroad Company and the Credit Mobilier of America. Union Pacific railroad and Credit Mobilier. 1873. 4 pp. Serial 1577.
- Industrial Commission. Report on transportation. 1900. IV. 832 pp. Serial 3992.
- Pacific Railroad Survey. Reports of explorations and surveys to ascertain the most practicable route for a rail-road from the Missouri river to the Pacific ocean. Made under direction of the secretary of war in 1853-4, 1854-5 and 1858-9. 13 v. Serials 758 to 768, and 792.
- Same. 1855 and 1860. 12 v. Serials 791 to 801, and 1054-5.
- Pacific Railway Commission. Report of the commission and of the minority commissioners. 1887. 217 pp. Serial 2505.
- — Testimony taken by the United States Pacific railway commission. 1887. 9 v. Serials 2505 to 2509.
- Public Land Commission. Laws of the United States of a local or temporary character, and exhibiting the entire legislation of congress upon which the public land titles in each state and territory have depended. 1880. Compiled by Alexander T. Britton. 1881. 2 v. 1300 pp. Serial 1976.
- — Same with supplement. 1883. 2 v. 1371 pp. Serials 2156-2157.
- — The public domain; its history with statistics. Compiled by Thomas Donaldson. 1881. 544 pp. Serial 1975.
- — Same, with supplement. 1884. 1343 pp. Serial 2158.

- Public Lands Commission. Report. 1905. 360 pp. Serial 4766.
Railroad land grants, 134, 143-55.
- Secretary of the Interior. Annual report, with accompanying documents. 1849—.
- — Contracts between Southern Pacific railroad and other companies. 1886. 14 pp. Serial 2398.
- Senate Committee for Examination of the Union and Central Pacific Railroads. Final completion of the Pacific railroad. 1869. 11 pp. Serial 1406.
- Senate Committee on Pacific Railroads. Government debt of the Pacific railroads. Notes of hearings before the committee on the subject of the indebtedness of the Pacific railroad to the government. 1896. 459 pp. Serial 3357.
- — (Partial report): The Pacific railroads. 1895. 121 pp. Serial 3288.
- — Pacific railroads. 1869. 31 + 3 pp. Serial 1362.
- — Patents for lands issued to certain railroads, etc. Testimony taken by a sub-committee in relation to the issue of patents for lands to the Pacific railroads and the California and Oregon railroad, and the payment of subsidies by certain Pacific railroad companies to the Pacific Mail steamship company. 1898. 127 pp. Serial 3625.
- — Railroad and telegraph line from Missouri river to the Pacific ocean. 1897. 10 + 6 + 352 pp. Serial 3569.
Statement by Mr. Collis P. Huntington, 37-300; The Central Pacific railroad debt, California's remonstrance against refunding it, 301-27; Statement and prayer from the legislature of California, 328; As to refunding the Central Pacific debt, 329-36; Extracts from the report of the U. S. Pacific railway commission, 337-45; A bill to create a board of trustees of the Union Pacific railway company, and the Central Pacific railroad company, and to fund the bond debts thereof, and for other purposes. 346 ff.
- Senate Committee on Public Lands. Railroad from the Mississippi to the Columbia river, and the memorial of Asa Whitney, suggesting the means and a proposition for the construction of such road from Lake Michigan to the Pacific ocean. 1846. 51 pp. Serial 478.

- Senate Committee on Roads and Canals. Railroad and electric telegraph from the Mississippi river to the Pacific ocean. 1850. 12 pp. Serial 565.
Refers to Whitney's plan.
- Treasury Department. Imports and drawbacks of sugar from 1821 to 1842, and drawbacks of duty on railroad iron. 1842. 5 pp. Serial 405.
- Utley, Henry Munson. Wild-cat banking system of Michigan. Pioneer and Historical Society of Michigan, Pioneer Collections. Lansing, 1884: V, 209-22.
- Vauclain, Samuel M. Locomotives of the nineteenth and twentieth centuries. New England Railroad Club, Proceedings. Boston, February, 1901: 4-52.
- Vernon, Edward. American railroad manual for the United States and the Dominion. N. Y., 1873-4. Annual.
- Villard, Henry. Memoirs of Henry Villard, journalist and financier. Boston, 1904. 2 v.
Railroads, II, 272-376.
- Statement to the stockholders of the Northern Pacific railroad. N. Y., 1884. 24 pp.
- Virginia. Report of the senate committee on finance relative to the public debt. [Richmond, 1878.] 36 pp.
Railroads, 2-4.
- Vose, George Leonard. Manual for railroad engineers and engineering students. Boston, 1874. 570 pp.
- Notes relative to the early history of transportation in Massachusetts. Association of Engineering Societies, Journal. N. Y., 1884: IV, 53-72.
- Wager, Daniel E. The Syracuse and Utica railroad. Oneida Historical Society, Transactions. Utica, 1881: I, 144-55.
- Waggoner, Clark. Pioneer railroads of Ohio. Railroad Gazette. N. Y., 1897: XXIX, 797-8.
- Waite, E. G. Californian overland railways. Overland Monthly. San Francisco, 1875: XIV, 9-17.
- Waldron, George B. Evolution of the American railroad. Chautauquan. Springfield (O.), 1904: XXXIX, 316-29.
- Walker, David H. Pioneers of prosperity. San Francisco, 1895. 191 pp.

- Walker, Herbert T. Early history of the Delaware, Lackawanna, and Western railroad. *Railroad Gazette*. N. Y., 1902: XXXIV, 388-588 *passim*.
- Walker, John Brisben. The Denver and Rio Grande; sixteen hundred miles of mountain railways. *Cosmopolitan*. N. Y., 1895: XIX, 14-28.
- Warman, Cy. The story of the railroad. N. Y., 1899. 280 pp.
Popular account of building the transcontinental railroads.
- Warne, Frank Julian. Birthplace of the American railroad. *Railway World*. Philadelphia, 1906: L, 5-7.
- Watkin, Edward W. A trip to the United States and Canada. London, 1852. 149 pp.
Railroads, 120-34.
- Watkins, John Elfreth. The development of the American rail and track. Report of the national museum, 1889: 651-708.
U. S. document; serial 2780.
- Weaver, Charles Clinton. Internal improvements in North Carolina previous to 1860. Baltimore, 1903. 95 pp.
Johns Hopkins University, Studies in Historical and Political Science. XXI, 113-207.
Railroads, 76 ff.
- Webb, Walter Loring. The economics of railroad construction. N. Y., 1906. 339 pp.
— Railroad construction; theory and practice. N. Y. (2 ed.), 1903. 675 pp.
- Wellington, Arthur Mellen. The economic theory of the location of railways. N. Y. (4 ed.), 1889. 980 pp.
- Wheeler, Olin D. The story of a railway. Wonderland, 1900. St. Paul, 1900: 77-103.
The Northern Pacific.
- White, Henry Kirke. History of the Union Pacific railway. Chicago, 1895. 129 pp.
- Whitney, Asa. Memorial praying a grant of public land to enable him to construct a railroad from Lake Michigan to the Pacific ocean. 1846. 10 pp.
U. S. document; serial 473.
- National railroad connecting the Atlantic and Pacific. Anon. [Washington, 1845.] 4 pp.

- A project for a railroad to the Pacific; with reports of committees of congress, resolutions of the state legislatures, etc., with other facts relating thereto. N. Y., 1849. 112 pp.
- Wilgus, Horace La Fayette. The Northwestern railway situation. Michigan Law Review. Ann Arbor, 1903: I, 251-76.
Pacific railroad history.
- Wilkes, George. The history of Oregon, geographical and political, and a thorough examination of the project of a national railroad from the Atlantic to the Pacific ocean. N. Y., 1845. 128 pp.
- Proposal for a national rail-road to the Pacific ocean for the purpose of obtaining a short route to Oregon and the Indies. N. Y. (2 ed.), 1845. 23 pp.
- Williams, Archibald. The romance of modern locomotion; containing interesting descriptions . . . of the use and development of the railroad in all parts of the world. London, 1905. 367 pp.
- Wilson, William Bender. The evolution, decadence, and abandonment of the Allegheny Portage railroad. Annual report of the secretary of internal affairs of Pennsylvania, 1898-9, part iv. Harrisburg, 1900: xli-xcvi.
- History of the Pennsylvania railroad company, with plan of organization, portraits of officials, and biographical sketches. Philadelphia, 1899. 2 v.
- Wilson, William Hasell. A brief review of railroad history from the earliest period to the year 1894. Philadelphia, 1895. 53 pp.
- Notes on the internal improvements of Pennsylvania; and Reminiscences of the first railroad over to Alleghany mountain, by Solomon W. Roberts. Philadelphia, 1879. 83 pp.
Wilson, 9-59; Roberts, 61 ff.
- Reminiscences of a railroad engineer. Philadelphia, 1896. 62 pp.
- Wisconsin. Report of a select committee . . . to investigate the affairs of the Milwaukee and Superior R. R. Co. Madison, 1858. 72 pp.
Fraudulent promotion.
- Wood, Horace Gay. A treatise on the law of railways. Edited by H. D. Minor. Boston (2 ed.), 1894. 3 v.
- Wood, Nicholas. A practical treatise on rail-roads, and interior communications in general; with original experiments and tables of the comparative value of canals and rail-roads. London, 1825. 314 pp.

- Same. First American from the second English edition. Edited by George Washington Smith. Philadelphia, 1832. 598 p.
- Wooley, Edwin C. The reconstruction of Georgia. N. Y., 1901. 112 pp. Columbia University, Studies in History, Economics and Public Law, XIII, 461-570.
- Worthington, Thomas Kimber. Historical sketch of the finances of Pennsylvania. N. Y., 1887. 108 pp. American Economic Association, Publications, II, 121-227.
- Wynne, J. The Pacific railroad. North American Review. Boston, 1856: LXXXII, 211-36.

- Anti-alarmist and Charleston in reply to the objections to railroads by Anti-debt. Published in the Charleston Mercury. Charleston, 1848. 56 pp.
- Ask Missouri about state ownership. Railway Age. Chicago, 1906: XLII, 310. }
- The subject is state aid; not state ownership.
- Baltimore and Ohio railroad. North American Review. Boston, 1827: XXV, 62-73.
- The business of a bond house. Van Norden Magazine. N. Y., 1906: I, no. 1: 24-8; no. 11: 49-51.
- California Credit Mobilier, alias Contract and Finance Co. of the Central Pacific railroad. From the San Francisco Bulletin. San Francisco, 1873. 13 pp.
- Canals and rail-roads. Quarterly Review. London, 1825: XXXI, 349-78.
- Chevalier and Cooper on Europe and America. Quarterly Review. London, 1837: LVIII, 497-523.
- Col. Scott as a railroad manager, builder, and financier. n. p., n. d. 31 pp.
- Texas and Pacific.
- The early history of railroads in this country. Railroad and Engineering Journal. N. Y., 1887: LXI, 40-3.
- Early railway competition with the canals. Railway World. Philadelphia, L, 9-11.
- Early Western transportation methods. Railway World. Philadelphia, 1906: L, 22-4.

- Experiments in state railway ownership. *Railway Age*. Chicago, 1906: XLII, 405-6.
- The false-alarm — being a reply to Anti-debt on the subject of railroads. By Charleston. Published in the *Charleston Mercury*. Charleston, 1847.
- The freebooters of American finance. *Blackwood's Magazine*. Edinburgh, 1884: CXXXVI, 114-24.
- Speculative construction.
- History and economy of railroads. *Southern Quarterly Review*. Charleston, 1848: XIII, 372-402.
- History of railroads, including the statistics of their present condition and future progress. *Bankers' Magazine*. N. Y., 1858: XII, 689-710.
- How congressmen are bribed. The Colton letters. Declaration of Huntingdon that congressman are for sale. n. p., n. d. 12 pp.
- Improvements in inland transport — railroads. *Edinburgh Review*. Edinburgh, 1834: LX, 94-124.
- Internal improvements. *New York Review*. N. Y., 1838: VI, 301-22.
- Journal of the internal improvement convention which assembled in Baltimore, December 8, 1834. Baltimore, 1835. 93 pp.
- Legislative control over railway charters. *American Law Review*. Boston, 1867: I, 451-76.
- Minutes and proceedings of the Memphis convention, assembled October 23, 1849. Memphis, 1850. 68 pp.
- Modern methods of railroad building. *Railroad Gazette*. N. Y., 1907: XLII, 325-6.
- A New England historical note. *Railroad Gazette*. N. Y., 1904: XXXVI, 128.
- Central New England railroad.
- Oakes Ames. A memoir. Cambridge, 1883. 143 pp.
- On the extension of railways in America. *Fraser's Magazine*. London, 1873: LXXXVII, 702-12.
- Pacific railroads. Sinking fund for the liquidation of the government bonds advanced in aid of construction. Arguments before the committee on the judiciary, United States senate. (45 cong. 1 sess.) [Washington, 1877?] 212 + 33 pp.
- Proceedings of the convention in favor of a national railroad to the

- Pacific ocean through the territories of the United States. Held at Philadelphia, April 1-3, 1850. Philadelphia, 1850. 79 pp.
- Proceedings of the friends of a rail-road to San Francisco at their public meeting held at the U. S. hotel in Boston, April 19, 1849, including an address to the people of the United States showing that P. P. F. Degrad's plan is the only one as yet proposed, which will secure promptly and certainly, and by a single act of legislation, the construction of a rail-road to California, in the shortest time allowed by the physical obstacles. Boston, 1849. 24 pp.
- Proceedings of the public meetings at various times in Charleston, calling for the city council to make subscriptions to railroads, showing that the council have acted in conformity with resolutions adopted at these meetings, and in harmony with the expressed desire of the citizens. Extracted from the public prints. Charleston, 1854. 27 pp.
- Proceedings of sundry citizens of Baltimore, convened for the purpose of devising the most efficient means of improving the intercourse between that city and the Western states. Baltimore, 1827. 38 pp.
- Railroad mania — being a series of letters originally published in the Charleston Mercury. By "Anti-debt." Charleston, 1847.
- Rail-roads and locomotive steam carriages. Quarterly Review. London, 1830: XLII, 377-404.
- Railroads of the United States. Bankers' Magazine. N. Y., 1865: XX, 307-28.
- Railway building in the United States. Saturday Review. London, 1886: LXII, 751-2.
- Railway legislation. Quarterly Review. London, 1844: LXXIV, 224-80. (N. Y. ed., 120-50.)
- Relations and rights of syndicate members. Lawyers' Reports Annotated. Rochester, 1897: XL, 216-33.
- Report of the committee on internal improvements made to the trade convention of the city of Baltimore, 1834. Baltimore, 1835. 21 pp.
- Report on steam carriages by a select committee of the house of commons of Great Britain, with the minutes of evidence and appendix. Reprinted by order of the house of representatives. 1832. 346 pp.

Documents in relation to the comparative merits of canals and railroads, 147—323. Additional documents, 324 ff.

U. S. document; serial 218.

The romance and reality of American railroads. Quarterly Review. London, 1884: CLVIII, 79-104.

/Statement of indebtedness of every town in the state [of Connecticut] for railroads, state institutions, and war debt. n. p., 1883. [11 pp.]

Steam navigation. New York Review. N. Y., 1838: III, 95-128.

Strange claim on the Illinois Central for taxes. Railway Age. Chicago, 1905: XL, 508-11.

Syndicates. Economist. London, 1873: XXXI, 994.

The West Shore enterprise. Bradstreet's. N. Y., 1885: XI, 274-7.

The Western Pacific. Railroad Gazette. N. Y., 1906: XL, 252-3.

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